

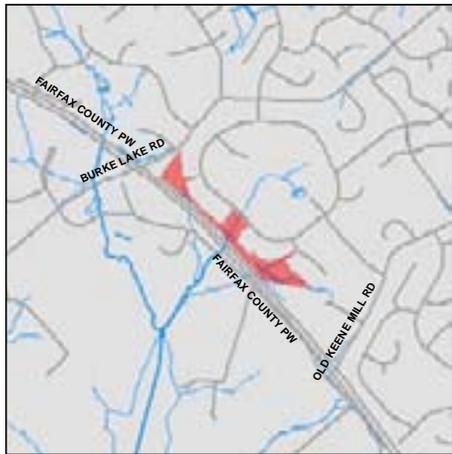
5.11 Pohick Creek – Project Fact Sheets

Project fact sheets for each 10-yr structural project included in the Pohick Creek Watershed Management Plan are included in this section. Individual project fact sheets are comprised of the following information:

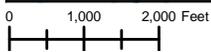
- Address / Location
- Land owner
- PIN (Tax map and parcel info)
- Control type (Water quality control, water quantity control, or both)
- Drainage area
- Receiving waters
- Description of proposed project
- Aerial view and sketch of proposed project
- Project Benefits
- Project Design Considerations
- Project Costs
- Site photos (existing conditions)

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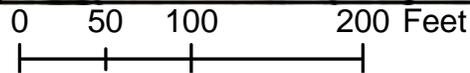
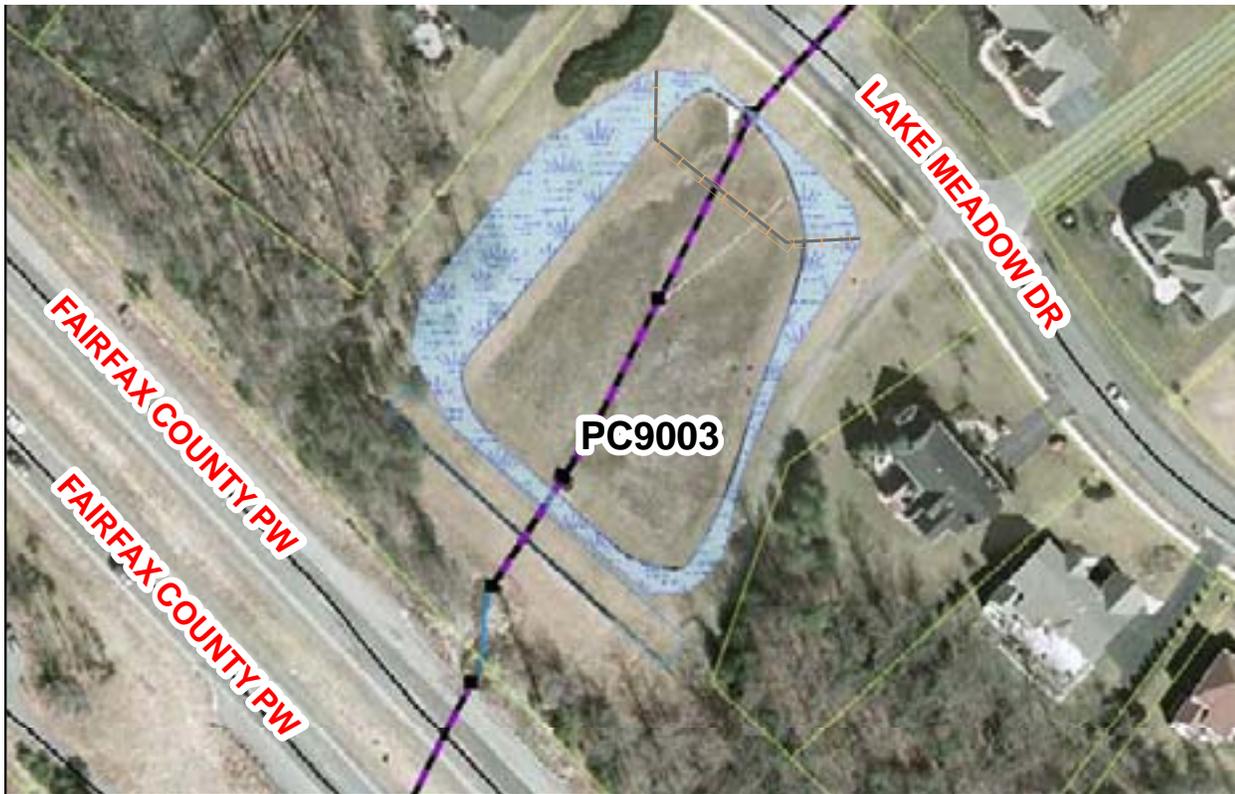
PC9003 Stormwater Pond Retrofit



Address: Next to 6424 Lake Meadow Dr., Burke, Virginia
Location: Regional pond near Lake Meadow Dr.
Land Owner: Private – Edgewater Land Bays 2&3 Homeowners Association
PIN: 0872 08 A
Control Type: Water quality and quantity control
Drainage Area: 18.22 acres
Receiving Waters: Tributary of South Run



Description: This project is an alternative to the regional pond P-03 Regional Pond P-03 which not been constructed. Instead a smaller neighborhood pond (0922DP) was built near the site of the proposed regional pond. This project proposes retrofitting this existing pond which is north of Fairfax County Parkway and south of Lake Meadow Drive, into a constructed wetland system with a sediment forebay and bench planting. This pond is upstream of another pond, and is located across Lake Meadow Drive. The primary problem indicators are poor wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: The retrofit will increase the time that stormwater travels through the facility, which will increase pollutant particulate settlement and provide a better environment for biological uptake and microbial activity. Adding a permanent pool prevents resuspension of sediments and other pollutants. Also increasing the time stormwater stays in the facility will provide better channel protection. Lastly, installing the sediment forebay will reduce debris and coarse sediment in the facility and will reduce maintenance requirements. Below are the project's estimated pollutant removal amounts.

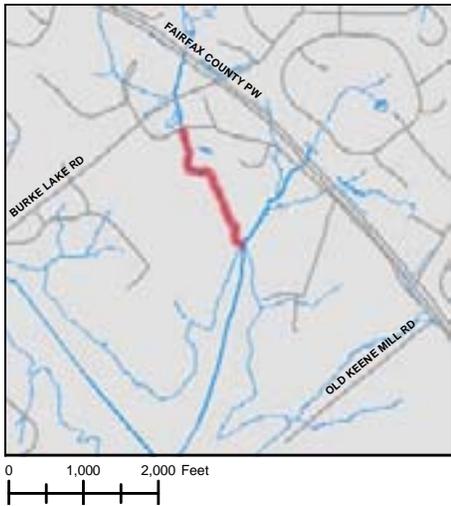
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.39	8.69	2.07

Project Design Considerations: Property is owned by local homeowners association, but is in a drainage easement, according to County records. The existing easement might have to be enlarged to allow facility to be expanded on the northwest side. (See project map.) Project is easily accessible and should not have any major impacts; however efforts should be made to minimize such impacts to existing mature vegetation. The sediment forebay should be 10% of the surface area of the pond. The aquatic bench should be planted 10 to 15' inward from top of bank. The vegetative buffer should be 10 to 15' outward from the top of bank. The existing concrete pilot channels should be removed.

Cost:

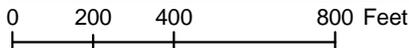
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	2350	CY	\$35	\$82,250
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	300	CY	\$40	\$12,000
Plantings	1	LS	5%	\$6,861
Ancillary Items	1	LS	5%	\$6,861
Erosion and Sediment Control	1	LS	10%	\$13,723
Base Construction Cost				\$164,670
Mobilization (5%)				\$8,234
Subtotal 1				\$172,904
Contingency (25%)				\$43,226
Subtotal 2				\$216,129
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$97,258
Total				\$313,388
Estimated Project Cost				\$320,000

PC9004 Stream Restoration Suite



Address: 10125 Lakehaven Court, Springfield, Virginia
Location: Roads – Lakehaven Court and Deckhand Drive
Land Owner: Private/Public –Accotink Unitarian Church, Fairfax County Park Authority, Common Wealth of Virginia Commision of Game and Inland Fisheries
PIN: 0872 01 0026, 0872 01 0029, 0874 01 0003
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run

Description: This project suite is a proposed alternative to Regional Pond P-04, which was proposed upstream (northwest) of Burke Lake but was not constructed. Subproject A is the stabilization of the stream northwest of Burke Lake. This project proposes repairing bank and bed erosion to restore channel morphology. The stream stabilization will reduce sediment loads to Burke Lake maintaining the capacity of the stream and controlling unwanted meander. This project is critical due to its impact on Burke Lake. Subproject B proposes removing an obstruction farther upstream of Burke Lake. This obstruction was verified during field verification. Removing the obstruction will help restore the stream channel to its natural conditions and improve the function of the stream.



Project Benefits: The stream stabilization will reduce sediment loads to the stream, maintaining the capacity of the stream and controlling unwanted meander. Removing the obstruction will help restore the stream channel to its natural conditions and improve the function of the stream. This suite of projects will help to return the stream to its natural condition and reduce pollutant loads and erosion. Below are the project's estimated pollutant removal amounts.

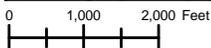
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
19.92	31.88	12.35

Project Design Considerations: Obstruction removal is on private residential property. Records show a storm drainage easement is located along Burke Lake Road at the entrance of the stream with the obstruction. Stream for restoration is located on property that is both publicly and privately owned. Efforts should be made to minimize impacts to mature vegetation.

Cost:

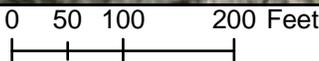
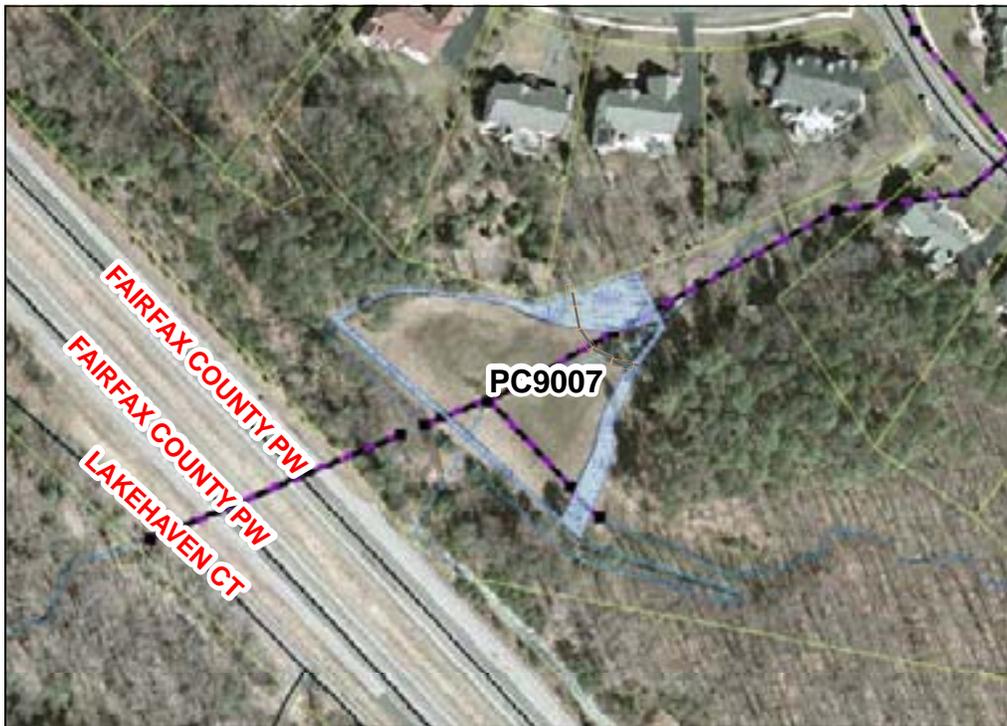
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Stream Restoration East of Pohick Ct.				
Construct New Channel	2026	LF	\$200	\$405,200
Clear and Grub	2.73	AC	\$10,000	\$27,300
Plantings	2.73	AC	\$25,000	\$68,250
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$60,075
Ancillary Items	1	LS	5%	\$30,038
Subproject B Obstruction Removal Near Lakehaven La.				
Obstruction Removal	1	LS	\$5,250	\$5,250
Base Construction Cost				\$696,113
Mobilization (5%)				\$34,806
Subtotal 1				\$730,918
Contingency (25%)				\$182,730
Subtotal 2				\$913,648
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$411,141
Total				\$1,324,789
Estimated Project Cost				\$1,330,000

PC9007 Stormwater Pond Retrofit



Address: Behind 6416 Lake Meadow Dr., Burke, Virginia
Location: Northeast of regional pond #3 behind Lake Meadow Dr.
Land Owner: Private – Edgewater Land Bay 2 & 3 Homeowners Association
PIN: 0872 08 A
Control Type: Water quality and quantity control
Drainage Area: 25.26 acres
Receiving Waters: Tributary of South Run

Description: This project proposes retrofitting an existing neighborhood pond (0956DP) as an alternative to Regional Pond P-07, which was not constructed. The existing neighborhood pond is upstream of where Regional Pond P-04 was originally proposed. The pond is northeast of Fairfax County Parkway and receives runoff from adjacent neighborhoods. This project proposes to retrofit the pond to create a wetland system with a sediment forebay and bench planting. The sediment forebay will provide pretreatment of stormwater runoff and the bench planting will increase pollutant removal. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: The retrofit will increase pollutant removal and provide adequate channel protection above the permanent pool. The retrofit will create a better functioning environment for gravitational settling, biological uptake and microbial activity. Below are the project's estimated pollutant removal amounts.

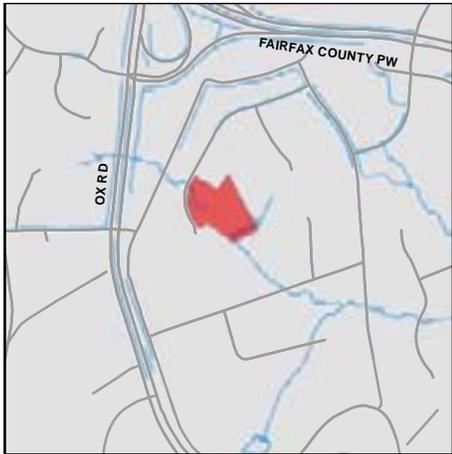
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.89	15.17	3.76

Project Design Considerations: Pond is located within a stormwater easement on private property. Additional easements may be required to prevent loss of existing mature vegetation. The sediment forebay should be no less than 10% of the size of the pond. The aquatic bench should be planted 10-15' inward from the water's edge. The vegetative buffer should be 10 to 15' outward from the water's edge. Effort should be made to minimize impacts to existing mature vegetation. Adjacent property owner said swale leading from his property to dry pond has eroded significantly. Rip rap and check dams have been placed in swale recently. Project will also address swale leading into the pond.

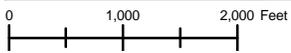
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	\$8,500	\$1,700
Grading and Excavation	1300	CY	\$35	\$45,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	160	CY	\$40	\$6,400
Plantings	1	LS	5%	\$4,549
Ancillary Items	1	LS	5%	\$4,549
Erosion and Sediment Control	1	LS	10%	\$9,098
Base Construction Cost				\$109,170
Mobilization (5%)				\$5,459
Subtotal 1				\$114,629
Contingency (25%)				\$28,657
Subtotal 2				\$143,286
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$64,479
Total				\$207,764
Estimated Project Cost				\$210,000

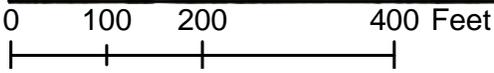
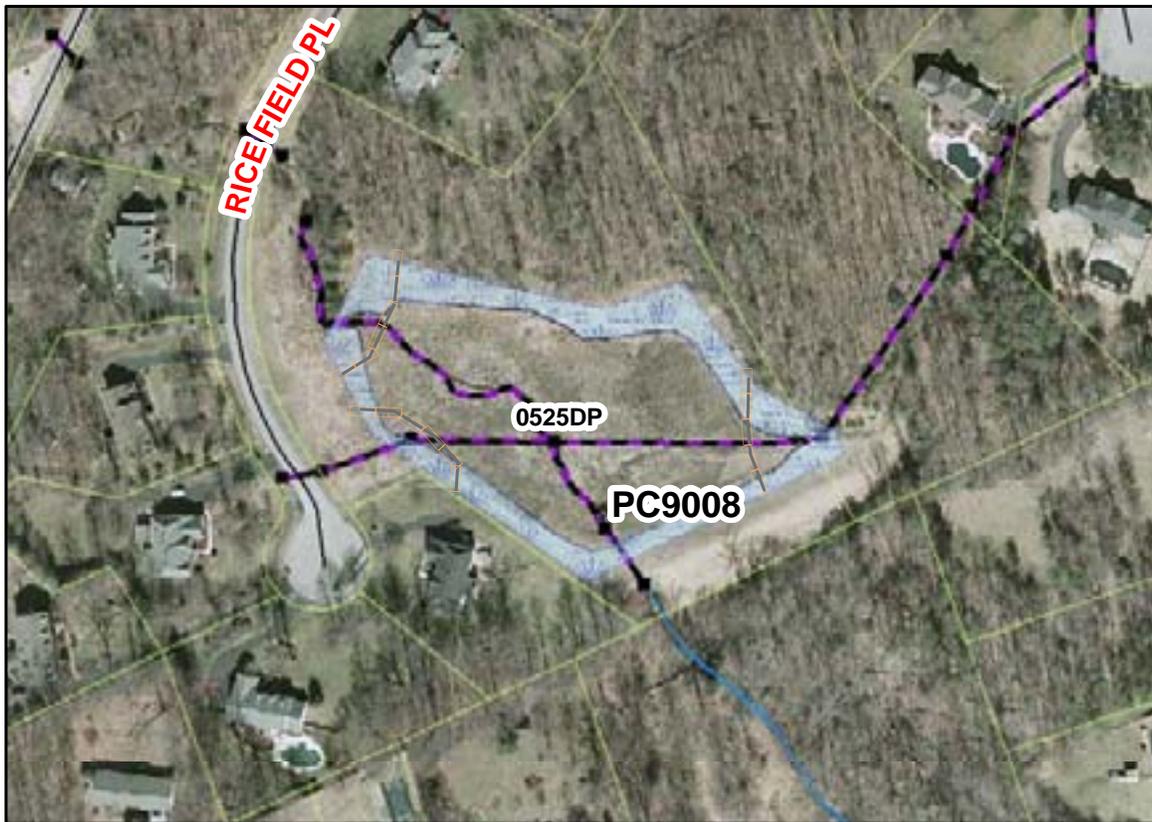
PC9008 Stormwater Pond Retrofit



Address: Next to 10995 Rice Field Pl, Fairfax Station, Virginia
Location: Wet Pond near Rice Field Pl
Land Owner: Private – Private Owner
PIN: 0773 12 A1, 0773 12 C
Control Type: Water quality and quantity control
Drainage Area: 121.67 acres
Receiving Waters: Tributary of South Run



Description: This project is a proposed supplement to the existing Regional Pond P-05 (0525DP) and will retrofit the pond into an extended detention dry pond with sediment forebays and additional planting. The pond is located southeast of Rice Field Place. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids. The pond collects runoff from a large drainage area that is mostly single-family residential development and roadways.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This pond retrofit will result in estimated 17.20 lbs/year of additional phosphorus removal. Extending the detention time of water in the pond will provide better downstream channel protection, create a better functioning environment for gravitational settling of pollutant particulates, increase biological uptake of pollutants and increase stormwater infiltration. Lastly, adding the the sediment forebays will prevent debris and coarse sediment from entering the pond and will reduce maintenance. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.99	75.99	17.20

Project Design Considerations: Three separate systems outfall into the pond. All outfalls will have a forebay installed to collect coarse sediments and debris. The pond outfalls into a stream at the south end. Pond is easily accessible because it is close to a roadway and access will not impact vegetation. Pond is on private property. Records show no onsite drainage easements. Pond can expand on all sides, especially to the north. (See project map.) Retrofit should not require significant tree removal. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

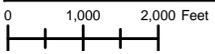
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.8	AC	\$8,500	\$6,800
Grading and Excavation	5000	CY	\$35	\$175,000
Structural BMP Retrofit and Incidentals	1	LS	\$20,000	\$20,000
Embankment	100	CY	\$50	\$5,000
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	200	SY	\$100	\$20,000
Organic Compost Soil Amendment	635	CY	\$40	\$25,400
Plantings	1	LS	5%	\$13,235
Ancillary Items	1	LS	5%	\$13,235
Erosion and Sediment Control	1	LS	10%	\$26,470
Base Construction Cost				\$317,640
Mobilization (5%)				\$15,882
Subtotal 1				\$333,522
Contingency (25%)				\$83,381
Subtotal 2				\$416,903
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$187,606
Total				\$604,509
Estimated Project Cost				\$610,000

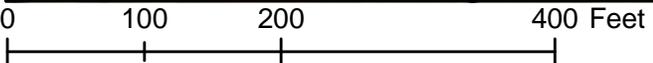
PC9100 Stormwater Pond Retrofit



Address: 9515 Richmond Highway, Lorton, Virginia
Location: Lorton Athletic Fields
Land Owner: Public/Local – Fairfax County Government
PIN: 1074 01 0031
Control Type: Water quality and quantity control
Drainage Area: 11.50 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at the Lorton Athletic Fields near Richmond Highway in Lorton. Two forebays will be created around the inlet areas and the pond can be expanded on all sides, especially to the northeast. The pond's detention time will be increased by modifying the existing discharge structure and increasing the pond's storage. The primary indicators are pollutants including phosphorus, nitrogen and total suspended solids. The pond collects runoff through a closed system from on-site fields and tennis courts, Richmond Highway, and from dense residential developments south of the site.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: An estimated 1.30 lbs/year of phosphorus will be removed. Increasing the time the water stays in the pond before outfalling into adjacent wooded area, will provide better downstream channel protection and promote pollutant settlement. (See hatched area on project map.) Installing the sediment forebays will collect debris and sediment that can reduce a facility's infiltration rate. This project will also increase the biological uptake of pollutants. Below are the project's estimated pollutant removal amounts.

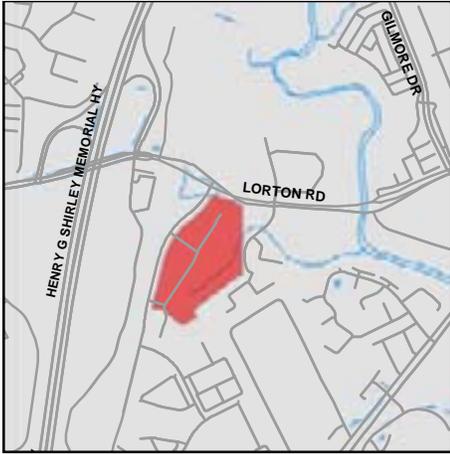
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.74	4.76	1.30

Project Design Considerations: This project is located on Fairfax County property. The pond is in a fenced in area and there is space available for expansion without impacting playing fields. The pond can expand on every side, especially to the northwest. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. The pond expansion will preserve mature vegetation as much as possible.

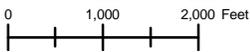
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	2260	CY	\$35	\$79,100
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	280	CY	\$40	\$11,200
Plantings	1	LS	5%	\$6,439
Ancillary Items	1	LS	5%	\$6,439
Erosion and Sediment Control	1	LS	10%	\$12,878
Base Construction Cost				\$154,530
Mobilization (5%)				\$7,727
Subtotal 1				\$162,257
Contingency (25%)				\$40,564
Subtotal 2				\$202,821
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$91,269
Total				\$294,090
Estimated Project Cost				\$300,000

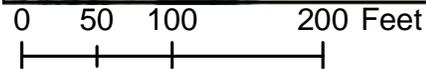
PC9101 Stormwater Pond Retrofit



Address: 9409 Lorton Market St., Lorton, Virginia
Location: Lorton Marketplace Shopping Center
Land Owner: Private – Columbia Lorton Station Marketplace LLC
PIN: 1074 23 E8
Control Type: Water quality and quantity control
Drainage Area: 7.60 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofitting of an existing pond to create an extended detention dry pond with a sediment forebay at 9409 Lorton Market St. (Lorton Marketplace Shopping Center). The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. The existing discharge structure will be modified to increase the amount of time water is detained in the pond. The existing concrete pilot channels will be removed to promote infiltration of low flows which can have high concentrations of pollutants.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: An estimated 2.43 lbs/year of phosphorus will be removed. Extending the pond detention time will provide better downstream channel protection and promote settlement of particulate pollutants. Installing the sediment forebay will reduce debris and coarse sediment in the pond, which will reduce pond maintenance. Installing the sediment forebay, removing the concrete pilot channels, and the landscaping improvements will improve the ponds infiltration. Below are the project's estimated pollutant removal amounts.

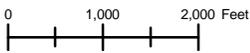
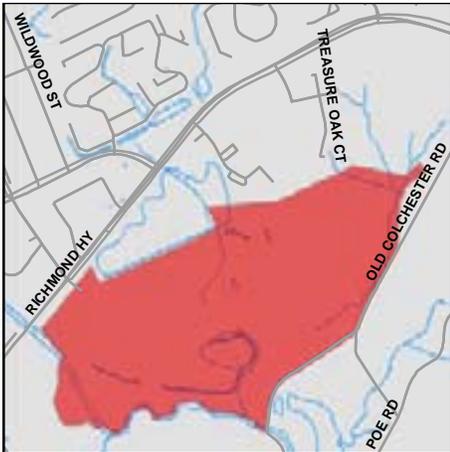
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.75	16.27	2.43

Project Design Considerations: Pond receives direct runoff from shopping center area. Pond has room for expansion. (See the project map). County records show this pond's name is to be determined (TBD). This might explain why GIS does not show an outfall from the pond. Pond is on private property but it is entirely within a storm drainage easement. The sediment forebay should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation.

Cost:

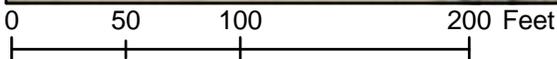
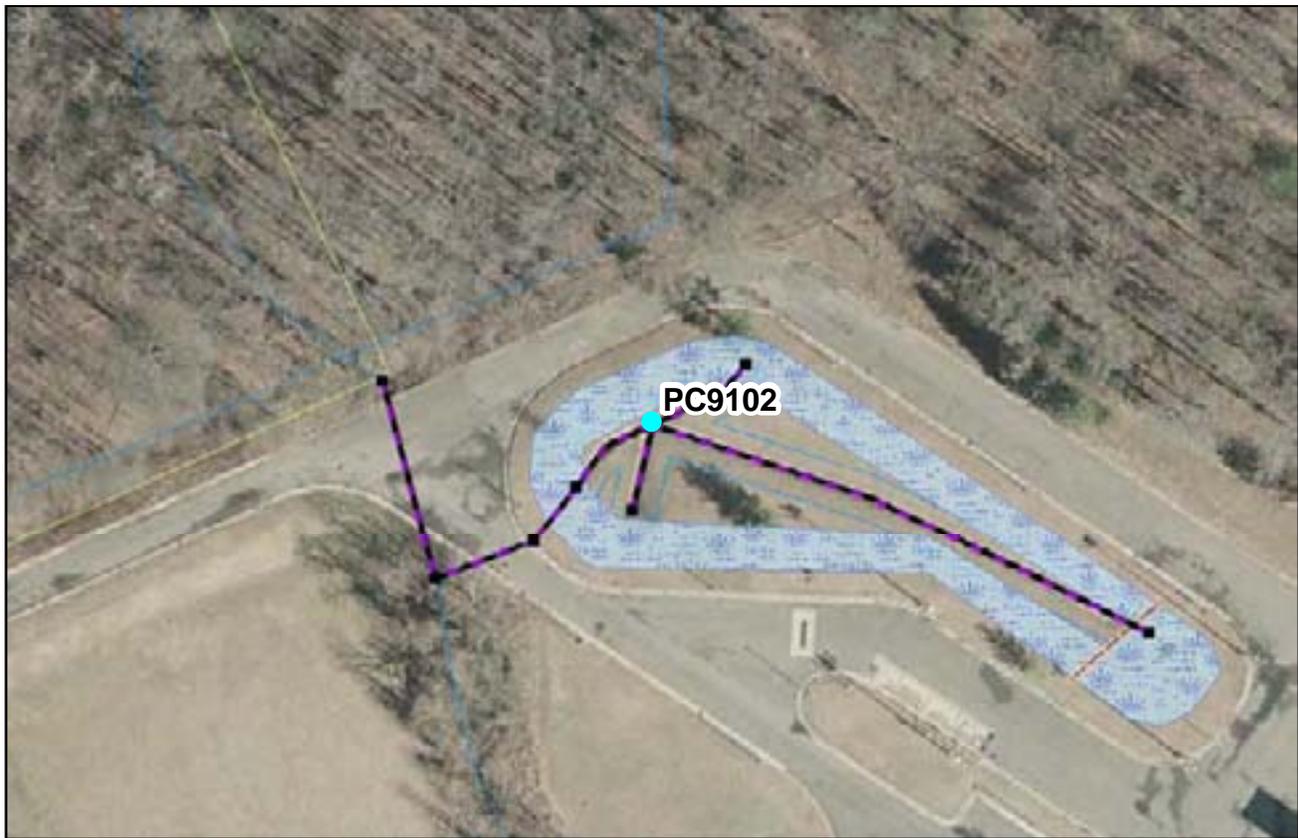
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.4	AC	\$8,500	\$3,400
Grading and Excavation	2000	CY	\$35	\$70,000
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	40	CY	\$50	\$2,000
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	300	CY	\$40	\$12,000
Plantings	1	LS	5%	\$5,870
Ancillary Items	1	LS	5%	\$5,870
Erosion and Sediment Control	1	LS	10%	\$11,740
Base Construction Cost				\$140,880
Mobilization (5%)				\$7,044
Subtotal 1				\$147,924
Contingency (25%)				\$36,981
Subtotal 2				\$184,905
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$83,207
Total				\$268,112
Estimated Project Cost				\$270,000

PC9102 Stormwater Pond Retrofit



Address: 9399 Richmond Highway, Lorton, Virginia
Location: Norman M. Cole WWTP
Land Owner: Public/Local – Fairfax County Government
PIN: 1083 01 0023
Control Type: Water quality and quantity control
Drainage Area: 12.60 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing dry pond to create an extended detention basin with a sediment forebay at the Norman M. Cole Jr. Wastewater Treatment Plant. The retrofit will increase the detention time of stormwater runoff and will improve stormwater quality. The existing dry pond is located in the parking lot for the plant. The indicators were pollutants including nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure. This will promote the settling of particulate pollutants before discharging into the system. Below are the project's estimated pollutant removal amounts.

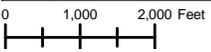
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.58	33.47	5.03

Project Design Considerations: The existing pond has concrete pilot channels. In smaller storms pollutants are concentrated in smaller flows and directed by the concrete channels to the outfall. This retrofit will remove the pilot channels, install sediment forebays, and add an aquatic bench. The two forebays will be approximately 10% of the pond area. The pond area will be expanded as shown on the project area map to allow the pond to provide extended detention of the stormwater to better treat the of stormwater runoff. The soil will be amended to improve infiltration. The island is located in the plant's main thoroughfare so a plan to maintain traffic during construction will be required.

Cost:

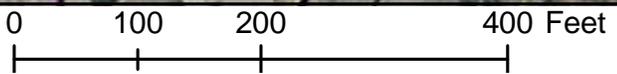
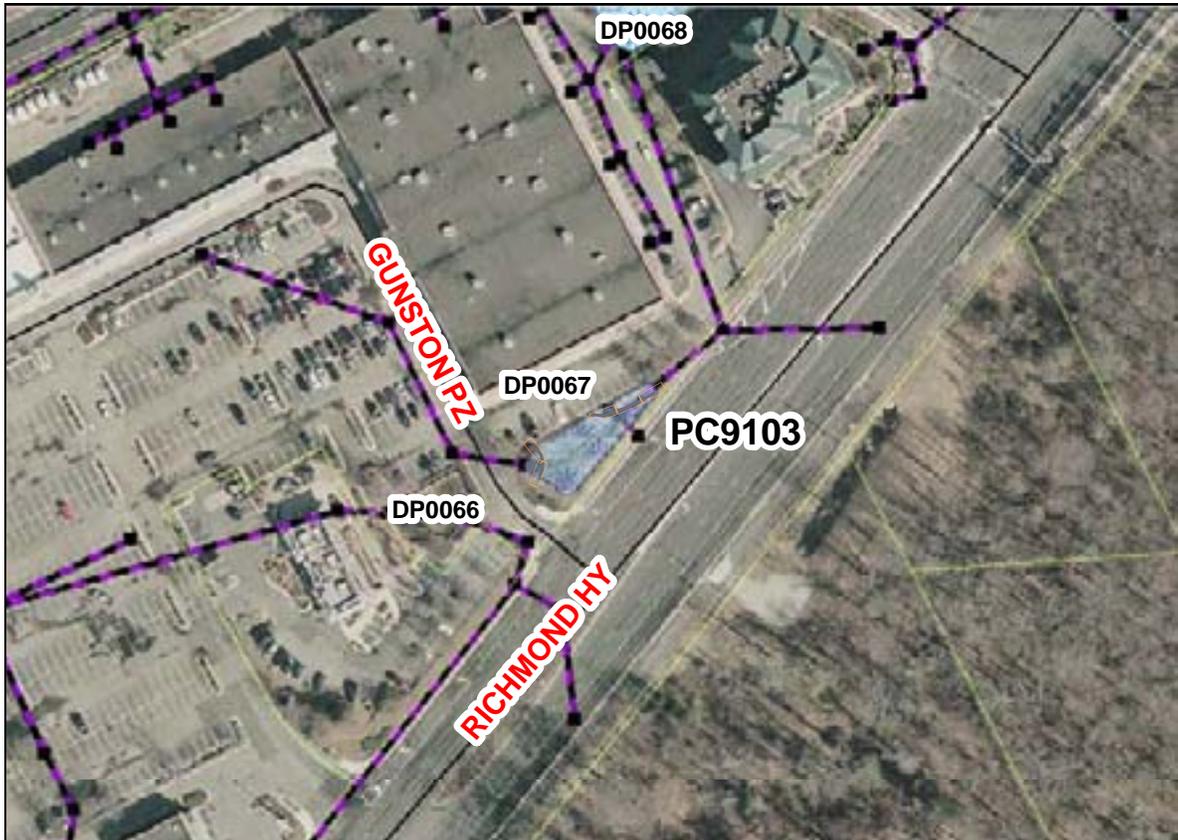
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	\$8,500	\$2,550
Grading and Excavation	900	CY	\$35	\$31,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	240	CY	\$40	\$9,600
Plantings	1	LS	5%	\$3,745
Ancillary Items	1	LS	5%	\$3,745
Erosion and Sediment Control	1	LS	10%	\$7,490
Base Construction Cost				\$89,880
Mobilization (5%)				\$4,494
Subtotal 1				\$94,374
Contingency (25%)				\$23,594
Subtotal 2				\$117,968
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,085
Total				\$171,053
Estimated Project Cost				\$180,000

PC9103 Stormwater Pond Retrofit



Address: 7665 Lorton Rd., Lorton, Virginia
Location: Gunston Shopping Plaza
Land Owner: Private – Gunston Station, LLC
PIN: 1074 03 0001B
Control Type: Water quality and quantity control
Drainage Area: 11.12 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center, northwest of Richmond Highway. The pond receives runoff from the shopping center and outfalls across Richmond Highway into wooded area. The indicators are pollutants including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: An estimated 2.07 lbs/year of phosphorus will be removed. The retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out before entering the system and controls the outfall volume. Below are the project’s estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.81	14.64	2.17

Project Design Considerations: Based on field observations, it appears the depth of the dry pond has significantly decreased due to sediment deposition in the pond area. The hatched area shown on the project map should have sediment removed to increase detention volume. Location has space limitations and no room for any expansion. All retrofitting will need to be inside of the existing pond area. Property is owned by Gunston Station, LLC. Records show no existing easements onsite. Area is too small to have sufficient vegetative buffer. The sediment forebays should account for approximately 10% of the pond area.

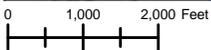
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.08	AC	\$8,500	\$680
Grading and Excavation	500	CY	\$35	\$17,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	40	CY	\$50	\$2,000
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	140	CY	\$40	\$5,600
Plantings	1	LS	5%	\$2,477
Ancillary Items	1	LS	5%	\$2,477
Erosion and Sediment Control	1	LS	10%	\$4,953
Base Construction Cost				\$59,436
Mobilization (5%)				\$2,972
Subtotal 1				\$62,408
Contingency (25%)				\$15,602
Subtotal 2				\$78,010
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$35,104
Total				\$113,114
Estimated Project Cost				\$120,000

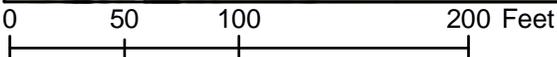
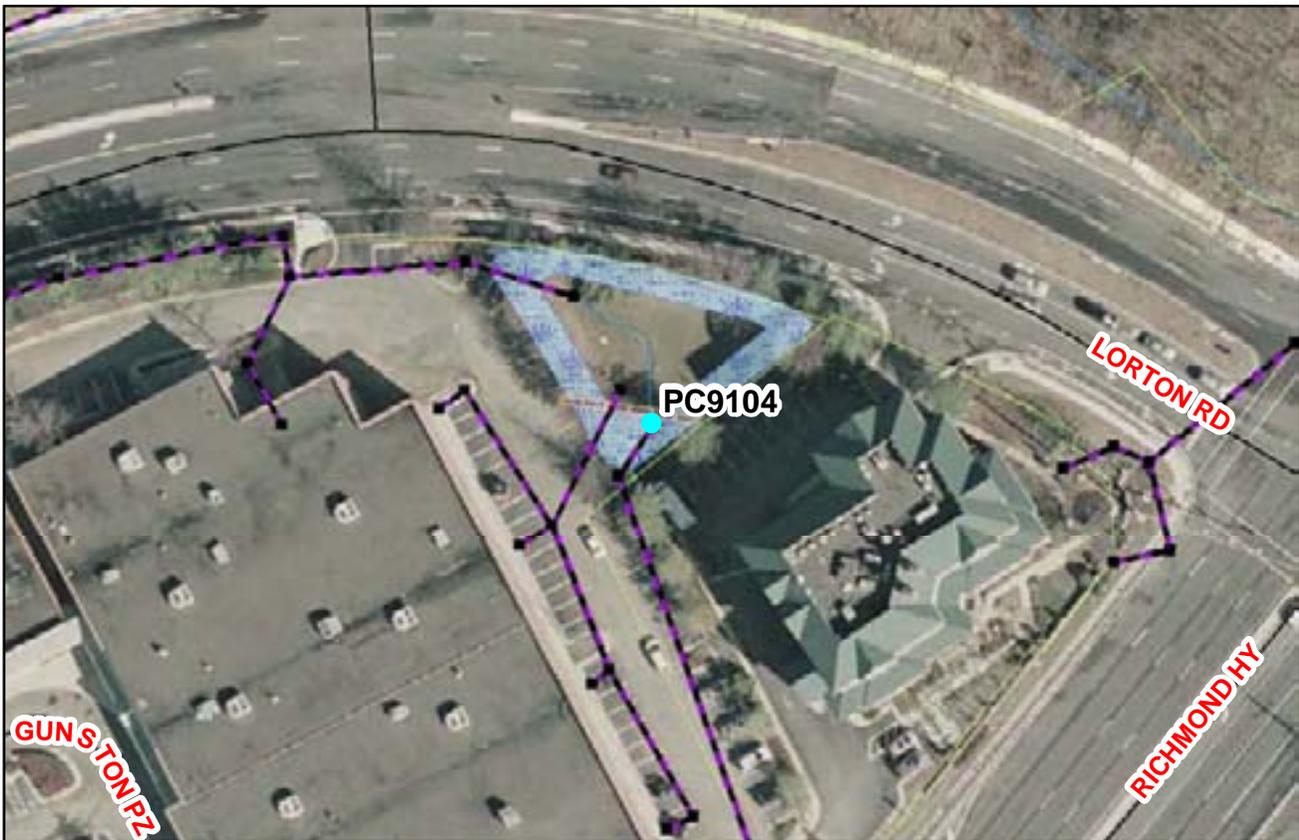
PC9104 Stormwater Pond Retrofit



Address: 7665 Lorton Road, Lorton, Virginia
Location: Gunston Shopping Plaza
Land Owner: Private – Gunston Station LLC.
PIN: 1074 03 0001B
Control Type: Water quality and quantity control
Drainage Area: 4.97 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebays at Gunston Plaza Shopping Center south of Lorton Road and northwest of Richmond Highway. The pond receives runoff from the shopping center and Lorton Road. The indicators are pollutants including nitrogen, phosphorus and total suspended solids. The retrofit will modify the existing pond to provide adequate downstream channel protection. This will allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out before entering the system.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This project will add a sediment forebay to the pond which will reduce sediment and debris. Also, enlarging the pond and modifying the existing outfall structure will increase the stormwater detention time. This allows more time for pollutants to settle and will increase biological uptake. An estimated 0.98 lbs/year of additional phosphorus will be removed after this retrofit. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.38	6.60	0.98

Project Design Considerations: Pond receives runoff from a large parking lot and building. The pond has three inflows and will require two sediment forebays. The sediment forebays should be sized to be about 10% of the size of the pond area. The size of the pond is limited due to constraints on all four sides. Available head difference in the pond needs to be determined from the construction plans. Records show no storm drain easements. Construction of sediment forebays alone and regular maintenance will help improve stormwater quality.

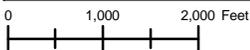
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	630	CY	\$35	\$22,050
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	80	CY	\$40	\$3,200
Plantings	1	LS	5%	\$2,555
Ancillary Items	1	LS	5%	\$2,555
Erosion and Sediment Control	1	LS	10%	\$5,110
Base Construction Cost				\$61,320
Mobilization (5%)				\$3,066
Subtotal 1				\$64,386
Contingency (25%)				\$16,097
Subtotal 2				\$80,483
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$36,217
Total				\$116,700
Estimated Project Cost				\$120,000

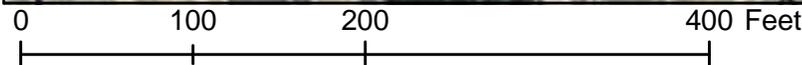
PC9105 Stormwater Pond Retrofit



Address: Near intersection of Lorton Station Blvd & Milford Haven Dr. (Behind 7747 Milford Haven Ct), Lorton, Virginia
Location: Stormwater Pond near Lorton Station Blvd & Milford Haven Dr.
Land Owner: Private – Laurel Hill Site Center LLC, Lorton Station Community Association, South Station LLC
PIN: 1072 01 0048A, 1072 01 0048B, 1072 01 0049
Control Type: Water quality and quantity control
Drainage Area: 21.76 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing dry pond northwest of Lorton Station Boulevard to create an extended detention dry pond with a sediment forebay. The pond's existing discharge structure will be modified to increase the pond's detention time, and the pond's size will be enlarged to handle the longer detention time. Primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Pond collects runoff from dense residential development and highly impervious commercial areas. The pond outfalls to the north and is conveyed in a concrete swale under a railroad track before discharging into a wooded area. The large majority of the drainage area is impervious.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: Extending this pond’s detention time will provide better downstream channel protection, promote particulate pollutant settlement, increase stormwater infiltration, and increase biological uptake of pollutants. Additional plantings will create a better functioning buffer to the pond. The forebay will prevent coarse sediments and debris from entering the pond and will reduce maintenance. Below are the project’s estimated pollutant removal amounts.

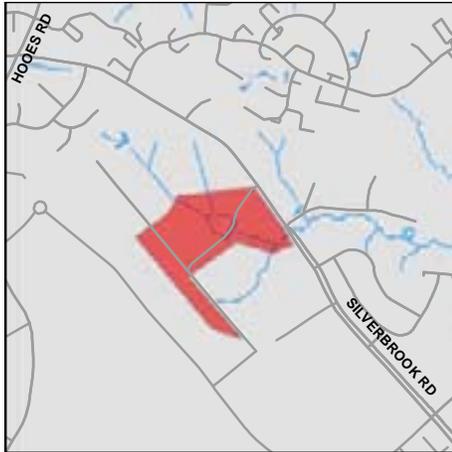
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
2.50	37.55	5.88

Project Design Considerations: Extending the detention time of the existng dry pond 1158DP will require expanding the pond into the wooded area. Efforts should be made to minimize impacts to existing mature vegetation. See hatched area on map. The sediment forebay should account for approximately 10% of the pond area. The vegetative buffer should be 10-15’ off of the top of bank. The majority of the land the pond is located on is owned by Lorton Station Community Association, but pond is also located on land owned by Laurel Hill Site Center LLC and South Station LLC. Records show the pond is located in an existing storm drain easement. This easement will need to be enlarged for the pond retrofit. This project outfalls to another proposed project, outfall improvement PC9701. Coordination of these projects should be investigated to determine cost savings.

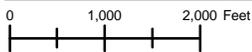
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	2300	CY	\$35	\$80,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	290	CY	\$40	\$11,600
Plantings	1	LS	5%	\$6,623
Ancillary Items	1	LS	5%	\$6,623
Erosion and Sediment Control	1	LS	10%	\$13,245
Base Construction Cost				\$158,940
Mobilization (5%)				\$7,947
Subtotal 1				\$166,887
Contingency (25%)				\$41,722
Subtotal 2				\$208,609
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$93,874
Total				\$302,483
Estimated Project Cost				\$310,000

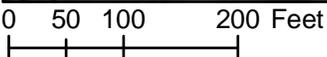
PC9106 Stormwater Pond Retrofit



Address: 8501 Silverbrook Road, Lorton, Virginia
Location: South County Secondary School
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 1073 01 0019
Control Type: Water quality and quantity control
Drainage Area: 40.23 acres
Receiving Waters: Tributary of Silver Brook



Description: Wet pond retrofit planned near South County Secondary School. Pond is set back from main road. This project proposes creating wetland system with the construction of a sediment forebay and the addition of bench planting. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will increase pollutant removal and provide adequate channel protection above the permanent pool. The retrofit will create a better functioning environment for gravitational settling, biological uptake and microbial reliable pollutant removal performance. Below are the project’s estimated pollutant removal amounts.

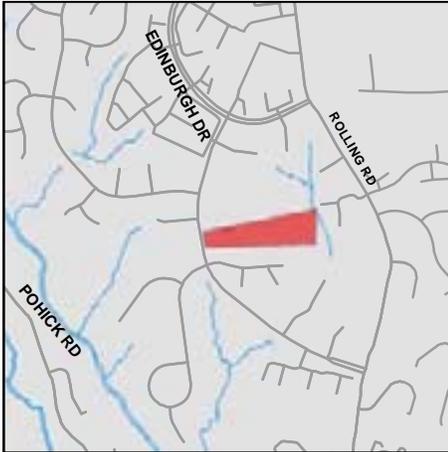
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.73	58.51	15.80

Project Design Considerations: Project is at an existing wet pond. The pond has an unpaved access road from the main road and is easily accessible. Construction should not impact existing mature vegetation, but efforts should be made to minimize disturbance. Forebay should be constructed at the northwest side and will be approximately 10% of the size of the pond. Forebay will be around both inlet pipes to the pond. A safety bench 10’ to 15’ outward and an aquatic bench 10’ to 15’ inward from the water’s edge should be constructed.

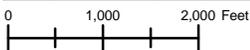
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.7	AC	\$8,500	\$5,950
Grading and Excavation	3500	CY	\$35	\$122,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	200	LF	\$125	\$25,000
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	500	CY	\$40	\$20,000
Plantings	1	LS	5%	\$9,823
Ancillary Items	1	LS	5%	\$9,823
Erosion and Sediment Control	1	LS	10%	\$19,645
Base Construction Cost				\$235,740
Mobilization (5%)				\$11,787
Subtotal 1				\$247,527
Contingency (25%)				\$61,882
Subtotal 2				\$309,409
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$139,234
Total				\$448,643
Estimated Project Cost				\$450,000

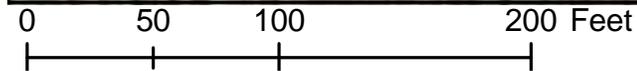
PC9107 Stormwater Pond Retrofit



Address: 8111 Northumberland Rd., Springfield, Virginia
Location: Saratoga Elementary School
Land Owner: Public/Local – Fairfax County Public School, Fairfax County Park Authority
PIN: 0984 04 S, 0984 11 B
Control Type: Water quality and quantity control
Drainage Area: 5.97 acres
Receiving Waters: Tributary of Pohick Creek



Description: Dry pond at Saratoga Elementary School receives runoff from a school parking lot and driveway. This project proposes the retrofit of an existing pond to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The sediment forebays will provide pretreatment of stormwater runoff.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will extend the pond's detention time, provide better downstream channel protection and promote the settlement of particulate pollutants. Installing the sediment forebays will reduce debris and coarse sediment in the pond which will help reduce maintenance and will increase infiltration. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.27	4.60	1.05

Project Design Considerations: Pond is partially on property owned by School Board of Fairfax County and partially on property owned by Fairfax County Park Authority. The pond size will need to be increased to accommodate the greater detention volume. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

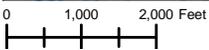
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	\$8,500	\$1,700
Grading and Excavation	1300	CY	\$35	\$45,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	20	CY	\$50	\$1,000
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	170	CY	\$40	\$6,800
Plantings	1	LS	5%	\$3,813
Ancillary Items	1	LS	5%	\$3,813
Erosion and Sediment Control	1	LS	10%	\$7,625
Base Construction Cost				\$91,500
Mobilization (5%)				\$4,575
Subtotal 1				\$96,075
Contingency (25%)				\$24,019
Subtotal 2				\$120,094
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$54,042
Total				\$174,136
Estimated Project Cost				\$180,000

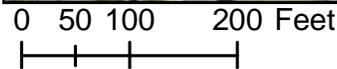
PC9109 Stormwater Pond Retrofit



Address: 8750 Pohick Rd., Springfield, Virginia
Location: St. Raymonds - Penafort Catholic Church
Land Owner: Private – Catholic Church
PIN: 0981 01 0013A
Control Type: Water quality and quantity control
Drainage Area: 6.96 acres
Receiving Waters: Tributary of Middle Run



Description: This stormwater pond retrofit is located at St. Raymond’s Penafort Catholic Church east of Fairfax County Parkway and north of Pohick Road. The pond receives runoff from church and parking lot. This project proposes modifying the existing discharge structure and expanding the pond to create an extended detention dry pond with a sediment forebay. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: Extending the time stormwater is detained in the pond will provide better downstream channel protection and promote particulate settlement. Installing the sediment forebays reduces debris and coarse sediment in the pond, increases infiltration, and decreases required maintenance. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.31	6.81	1.20

Project Design Considerations: The pond is on church property and does not have a County ID number. Records show there are no easements on site. Pond receives runoff by a swale in the northwest corner of pond and sheet flow along the south side of pond. The main sediment forebay would be located in the northwest corner. The sediment forebays should account for approximately 10% of the pond area. Creating an additional swale may be necessary to direct runoff to sediment forebay. Adding a vegetative buffer 10-15' off of the top of bank would help provide pretreatment to sheet flow that drains into the south side of the pond. The pond can expand to north and east. (See project map). Efforts should be made to minimize impacts to existing mature vegetation.

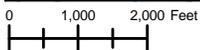
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	1600	CY	\$35	\$56,000
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	200	CY	\$40	\$8,000
Plantings	1	LS	5%	\$4,769
Ancillary Items	1	LS	5%	\$4,769
Erosion and Sediment Control	1	LS	10%	\$9,538
Base Construction Cost				\$114,450
Mobilization (5%)				\$5,723
Subtotal 1				\$120,173
Contingency (25%)				\$30,043
Subtotal 2				\$150,216
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$67,597
Total				\$217,813
Estimated Project Cost				\$220,000

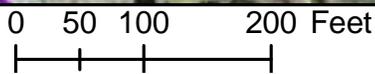
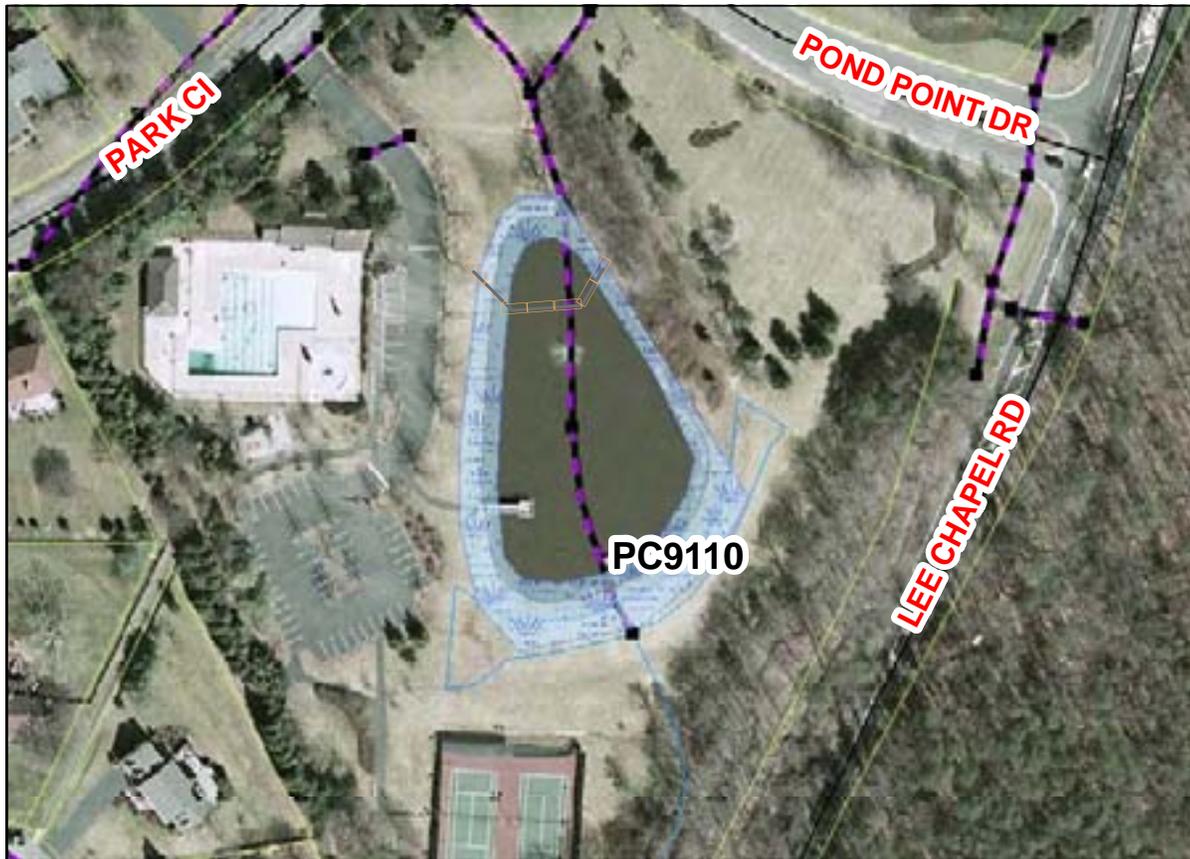
PC9110 Stormwater Pond Retrofit



Address: 9908 South Park Circle, Fairfax Station, Virginia
Location: Wetland near South Park
Land Owner: South Run Regency
PIN: 0883 06 G
Control Type: Water quality and quantity control
Drainage Area: 42.66 acres
Receiving Waters: Tributary of South Run



Description: This project proposes the retrofit of an existing wet pond at a community center off of Park Circle to create a wetland system with construction of a sediment forebay and the addition of a bench planting. The pond collects runoff from adjacent neighborhoods and roadways to the north and outfalls into a stream to the south. The primary indicators are wetland habitat and pollutants, including nitrogen, phosphorous and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will modify the existing pond to increase pollutant removal and provide adequate channel protection above the permanent pool. It will create a better functioning environment for gravitational settlement, biological uptake and microbial activity. The addition of the sediment forebay provides improved treatment. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.21	24.16	5.83

Project Design Considerations: Proposed project is at a community swim club. Efforts should be made to minimize impacts to the functions of the community center. There is an existing pier that goes into the water. The effects on existing mature vegetation should be minimized. The forebay should account for approximately 10% of the total surface area of the pond. The pond is not within any easements and is on private property owned by South Run Regency.

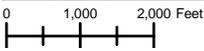
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1	AC	\$8,500	\$8,500
Grading and Excavation	4000	CY	\$35	\$140,000
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	100	LF	\$125	\$12,500
Rip Rap Stabilization	150	SY	\$100	\$15,000
Organic Compost Soil Amendment	800	CY	\$40	\$32,000
Plantings	1	LS	5%	\$11,275
Ancillary Items	1	LS	5%	\$11,275
Erosion and Sediment Control	1	LS	10%	\$22,550
Base Construction Cost				\$270,600
Mobilization (5%)				\$13,530
Subtotal 1				\$284,130
Contingency (25%)				\$71,033
Subtotal 2				\$355,163
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$159,823
Total				\$514,986
Estimated Project Cost				\$520,000

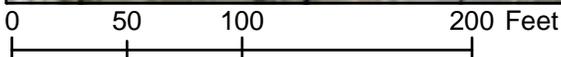
PC9114 Stormwater Pond Retrofit



Address: 7420 Reservation Dr., Springfield, Virginia
Location: Pond at Sangster Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0883 02 N
Control Type: Water quality and quantity control
Drainage Area: 8.65 acres
Receiving Waters: Tributary of Peyton Run



Description: This project proposes a pond retrofit at Sangster Elementary School northwest of Reservation Drive. Stormwater runoff is collected in a closed system and outfalls into a dry pond near the school's entrance. The pond outfalls across Reservation Drive into a wooded area and ultimately into a stream. This project proposes removing the pond's existing pilot channel and retrofitting the pond to create a wetland system with sediment forebays for the two inflows and bench planting to help increase pollutant uptake. The primary indicators are wetland habitat, nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will increase the time stormwater remains in the basin to be treated and will allow more time for the stormwater to infiltrate. This will help decrease erosion downstream where the pond outfalls through a culvert directly into a wooded area. The retrofit will increase pollutant removal and provide adequate downstream channel protection to minimize erosion.

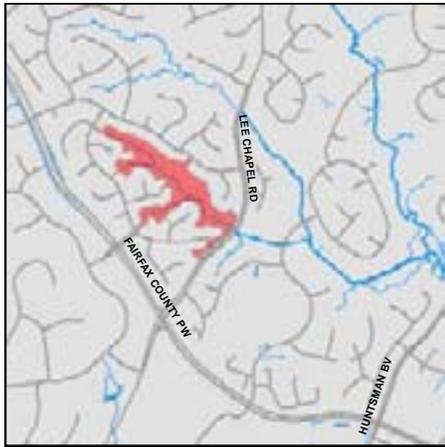
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.59	9.74	2.57

Project Design Considerations: The existing dry pond's pilot channels direct flows from small storm events with high pollutant concentrations directly to the outfall with no chance for infiltration. Due to the existing pond's limited difference in outfall elevation, and the need to remove the concrete pilot channels, it is necessary to convert the existing dry pond into a wetland system. The pond's footprint will be expanded to utilize most of the area in the landscape island as shown by the hatched area. Additional planting would be added in this area. The existing trees would be incorporated into the design. To allow more infiltration and pretreatment of the stormwater, curb cuts and gravel filter strips should be used along the road edge. The stormwater facility would be an educational asset to the school, because of its ability to showcase how stormwater can be treated by natural processes.

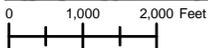
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	500	CY	\$35	\$17,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	40	LF	\$125	\$5,000
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	250	CY	\$40	\$10,000
Plantings	1	LS	5%	\$2,586
Ancillary Items	1	LS	5%	\$2,586
Erosion and Sediment Control	1	LS	10%	\$5,173
Base Construction Cost				\$62,070
Mobilization (5%)				\$3,104
Subtotal 1				\$65,174
Contingency (25%)				\$16,293
Subtotal 2				\$81,467
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$36,660
Total				\$118,127
Estimated Project Cost				\$120,000

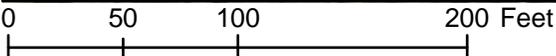
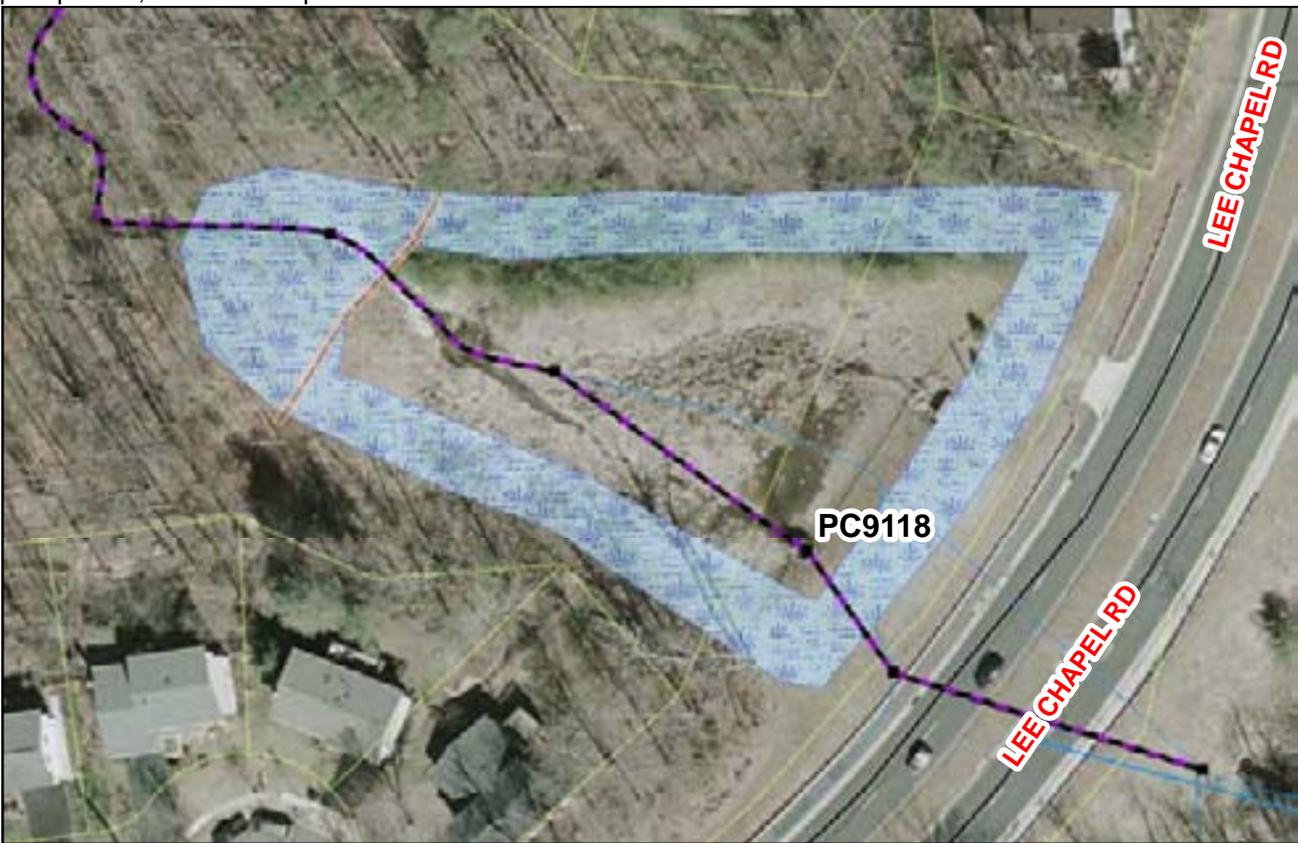
PC9118 Stormwater Pond Retrofit



Address: Behind 9500 Shipwright Dr., Burke, Virginia
Location: Pond near Shipwright Dr.
Land Owner: Private – Longwood Knolls Homeowners Association
PIN: 0883 03 A, 0883 03 A2
Control Type: Water quality and quantity control
Drainage Area: 90.90 acres
Receiving Waters: Tributary of Sangster Branch



Description: Large dry pond west of Lee Chapel Road and east of Shipwright Drive receives runoff from a stream in wooded area and adjacent neighborhoods. Project proposes to retrofit the existing pond to create an extended detention dry pond with a sediment forebay. The retrofit will modify the discharge structure to increase the time stormwater stays in the pond. The pond will be increased in size and to handle the larger volume and an aquatic bench of wetland plants will be added to treat pollutants. Primary problem indicators are pollutants: nitrogen, phosphorus, and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out of the stormwater discharge. The addition of the sediment forebay will reduce debris and coarse sediment, reducing maintenance costs. Below are the project's estimated pollutant removal amounts.

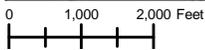
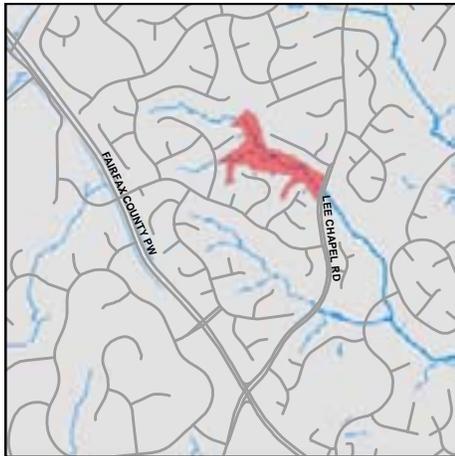
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
1.38	6.27	2.05

Project Design Considerations: There appears to be sufficient land area for expansion of the pond. Improving this pond which treats a very large residential drainage area will have great benefits. Additionally the pond is easily accessible. Entire pond is on land owned by Longwood Knolls Homeowner's Association. There are no onsite easements. Forebay should account for approximately 10% of pond area and should be constructed on the upstream side, which is to the northwest. Outfall pipe goes under Lee Chapel Road. Landscaping plan for aquatic bench should incorporate existing vegetation as much as possible.

Cost:

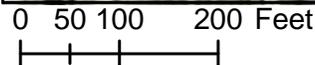
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.3	AC	\$8,500	\$11,050
Grading and Excavation	2000	CY	\$35	\$70,000
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	55	CY	\$50	\$2,750
Outflow Pipe	250	LF	\$125	\$31,250
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	750	CY	\$40	\$30,000
Plantings	1	LS	5%	\$8,503
Ancillary Items	1	LS	5%	\$8,503
Erosion and Sediment Control	1	LS	10%	\$17,005
Base Construction Cost				\$204,060
Mobilization (5%)				\$10,203
Subtotal 1				\$214,263
Contingency (25%)				\$53,566
Subtotal 2				\$267,829
				\$120,523
Total				\$388,352
Estimated Project Cost				\$390,000

PC9120 Stormwater Pond Retrofit



Address: Behind 9505 Southern Cross La., Burke, Virginia
Location: Pond near Southern Cross La.
Land Owner: Private – Longwood Knolls Homeowners Association
PIN: 0881 05 D
Control Type: Water quality and quantity control
Drainage Area: 116.09 acres
Receiving Waters: Tributary of Peyton Run

Description: This project proposes the creation of an extended detention dry pond with sediment forebay. The existing dry pond northwest of Lee Chapel Road and southwest of Southern Cross Lane receives runoff from these roads as well as Ebb tide Lane. Due to pollutants such as phosphorous, nitrogen and total suspended solids, a retrofit is proposed. This will allow for better downstream channel protection and allow for better function of temporary ponding, as well as promote the settlement of particulate pollution. Pond has easy access and room for expansion.



- SW Pond Retrofit
- Storm Network
- Sediment Forebay
- Property Line
- Streams

Project Benefits: This retrofit will provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate pollutants to settle out. Installing the sediment forebay will reduce debris and coarse sediment in the pond. The planting in the proposed aquatic bench and safety bench will increase the ponds biological uptake of pollutants, such as nitrogen and phosphorus. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.50	6.94	2.26

Project Design Considerations: This project is proposed on private land owned by Longwood Knolls Homeowners Association. The pond's safety bench and aquatic bench should be landscaped to prevent access to the pool due to proximity to homes. Location has a large amount of existing vegetation. Efforts should be made to minimize impacts to existing mature vegetation. The pond receives inflows from a culvert and sheet flow from the adjacent residential homes. The total area of the sediment forebay should be approximately 10% of the pond's surface area.

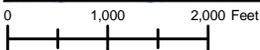
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.15	AC	\$8,500	\$9,775
Grading and Excavation	5000	CY	\$35	\$175,000
Structural BMP Retrofit and Incidentals	1	LS	\$20,000	\$20,000
Embankment	60	CY	\$50	\$3,000
Outflow Pipe	200	LF	\$125	\$25,000
Rip Rap Stabilization	150	SY	\$100	\$15,000
Organic Compost Soil Amendment	800	CY	\$40	\$32,000
Plantings	1	LS	5%	\$13,989
Ancillary Items	1	LS	5%	\$13,989
Erosion and Sediment Control	1	LS	10%	\$27,978
Base Construction Cost				\$335,730
Mobilization (5%)				\$16,787
Subtotal 1				\$352,517
Contingency (25%)				\$88,129
Subtotal 2				\$440,646
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$198,291
Total				\$638,936
Estimated Project Cost				\$640,000

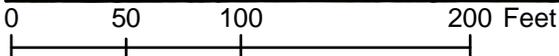
PC9121 Stormwater Pond Retrofit



Address: 9900 Old Keene Mill Road, Burke, Virginia
Location: Burke Community Church
Land Owner: Private - Burke Community Church
PIN: 0881 01 0007A
Control Type: Water quality and quantity control
Drainage Area: 7.63 acres
Receiving Waters: Tributary of South Run



Description: This project proposes to retrofit an existing pond northeast of Fairfax County Parkway at Burke Community Church to create a wetland system with construction of a sediment forebay and the addition of low marsh and high marsh plantings. The primary indicators are wetland habitat and pollutants. The pond receives runoff from the church and parking lot. The retrofit will modify the existing pond to increase pollutant removal and to provide adequate channel protection. The retrofit will create a better functioning environment for gravitational settling, biological uptake and microbial activity.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: The extended detention basin and sediment forebay will provide additional stormwater management. The sediment forebay and increased detention time will increase sediment settling and biological uptake. Enlarging the pond and adjusting the outfall structure will decrease the ponds peak discharge which will protect the downstream channel. Below are the project’s estimated pollutant removal amounts.

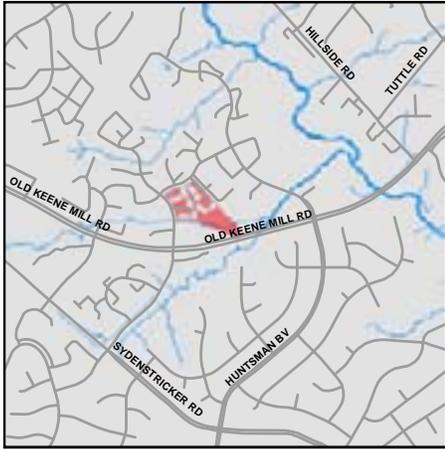
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.73	14.76	4.08

Project Design Considerations: This pond receives a significant amount of runoff due to the impervious parking lot. Due to this pond being labeled TBD in the County’s system (meaning To Be Determined), it appears that this pond’s maintenance is not reviewed by the County. Improving this facility to meet today’s standards, would help insure proper maintenance for this facility and incorporation into the County’s system. This project appears feasible due to the fact that there is available space. The records do not show this pond as being located in an easement.

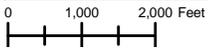
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	1000	CY	\$35	\$35,000
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	175	CY	\$40	\$7,000
Plantings	1	LS	5%	\$3,519
Ancillary Items	1	LS	5%	\$3,519
Erosion and Sediment Control	1	LS	10%	\$7,038
Base Construction Cost				\$84,450
Mobilization (5%)				\$4,223
Subtotal 1				\$88,673
Contingency (25%)				\$22,168
Subtotal 2				\$110,841
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$49,878
Total				\$160,719
Estimated Project Cost				\$170,000

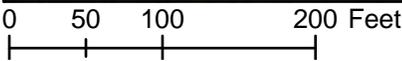
PC9122 Stormwater Pond Retrofit



Address: Field Master Dr. & Old Keene Mill Road, Springfield, Virginia
Location: Pond along Old Keene Mill Road (access road)
Land Owner: Private – Keene Mill Village Two Homeowners Association, III Keene Mill Village Homeowners Association, Keene Mill Village Recreation Association
PIN: 0882 13 B, 0882 1303 D, 0882 13 E
Control Type: Water quality and quantity control
Drainage Area: 40.47 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing pond north of Old Keene Mill Road and east of Field Master Drive, which receives runoff from adjacent roads and neighborhoods. The existing dry pond will be retrofitted to create an extended detention dry pond with a sediment forebay. Pond receives runoff from a large drainage area consisting of dense residential development, roadways and wooded areas. Pond outfalls to the adjacent stream in the wooded area to the east.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: Extending the pond's detention time will help prevent downstream channel erosion and will increase pollutant settlement in the pond. The forebay will collect the majority of the roadway fines and help maintain the infiltration capacity of the pond and reduce major maintenance repairs. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
2.58	42.76	8.35

Project Design Considerations: This project is on private property owned by Keene Mill Village Two Homeowners Association. Records show no easements near the site. The sediment forebay should account for approximately 10% of pond area. The existing concrete pilot channel should be removed, and the existing discharge structure will need to be modified to extend the pond's detention time. Due to the addition of the sediment forebay and the extended detention time, the pond size will probably have to be increased as shown on the project area map. The pond is in a heavily wooded area, and efforts should be made to minimize impacts to existing mature vegetation. The landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and all access areas. The pond has its own access road off of the main road.

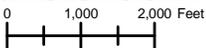
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.9	AC	\$8,500	\$7,650
Grading and Excavation	2500	CY	\$35	\$87,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	65	CY	\$50	\$3,250
Outflow Pipe	150	LF	\$125	\$18,750
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	700	CY	\$40	\$28,000
Plantings	1	LS	5%	\$8,508
Ancillary Items	1	LS	5%	\$8,508
Erosion and Sediment Control	1	LS	10%	\$17,015
Base Construction Cost				\$204,180
Mobilization (5%)				\$10,209
Subtotal 1				\$214,389
Contingency (25%)				\$53,597
Subtotal 2				\$267,986
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$120,594
Total				\$388,580
Estimated Project Cost				\$390,000

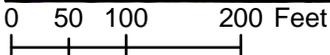
PC9124 Stormwater Pond Retrofit



Address: 6401 Missionary Lane, Fairfax Station, Virginia
Location: Fairfax Baptist Temple Academy
Land Owner: Private – Fairfax Baptist Temple
PIN: 0872 01 0036
Control Type: Water quality and quantity control
Drainage Area: 37.90 acres
Receiving Waters: Tributary of Oppossum Branch



Description: This project proposes the retrofit of two connecting ponds at Fairfax Baptist Temple Academy to create an extended detention dry pond with sediment forebays. The retrofit will install sediment forebays on the inflow pipes, remove the pilot channels, add an aquatic bench with an engineered landscaping plan, and modify the outlet structure to increase the stormwater treatment time. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Pond is bisected by an access road. A pipe goes under the access road to connect the two ponds.



- SW Pond Retrofit
- Storm Network
- Sediment Forebay
- Property Line
- Streams

Project Benefits: Extending the detention of stormwater in this pond will provide better downstream channel protection and more time to promote particulate pollutant settlement. The new sediment forebays will reduce debris and coarse sediment that typically wash off of parking lots. The sediment forebay, if maintained properly, will decrease the necessary maintenance to the rest of the pond. Lastly, removing the pilot channels will allow the pond to better treat runoff from small storms which yield runoff with high pollutant concentrations. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
1.44	29.76	6.41

Project Design Considerations: There appears to be room for expansion and enhancement of existing ponds. The pond is on property owned by Fairfax Baptist Temple. Both ponds have inflow pipes and concrete pilot channels. Sediment forebays should be installed on the inflow pipes and be sized no less than 10% of the size of the pond. To install the sediment forebays and extend the stormwater detention the size of the pond may have to be increased. Efforts should be made to minimize impacts to existing vegetation. The concrete pilot channels should be removed and the landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and along access areas.

Cost:

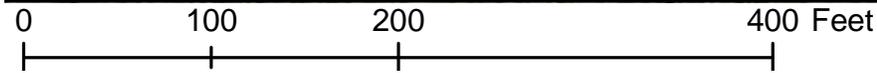
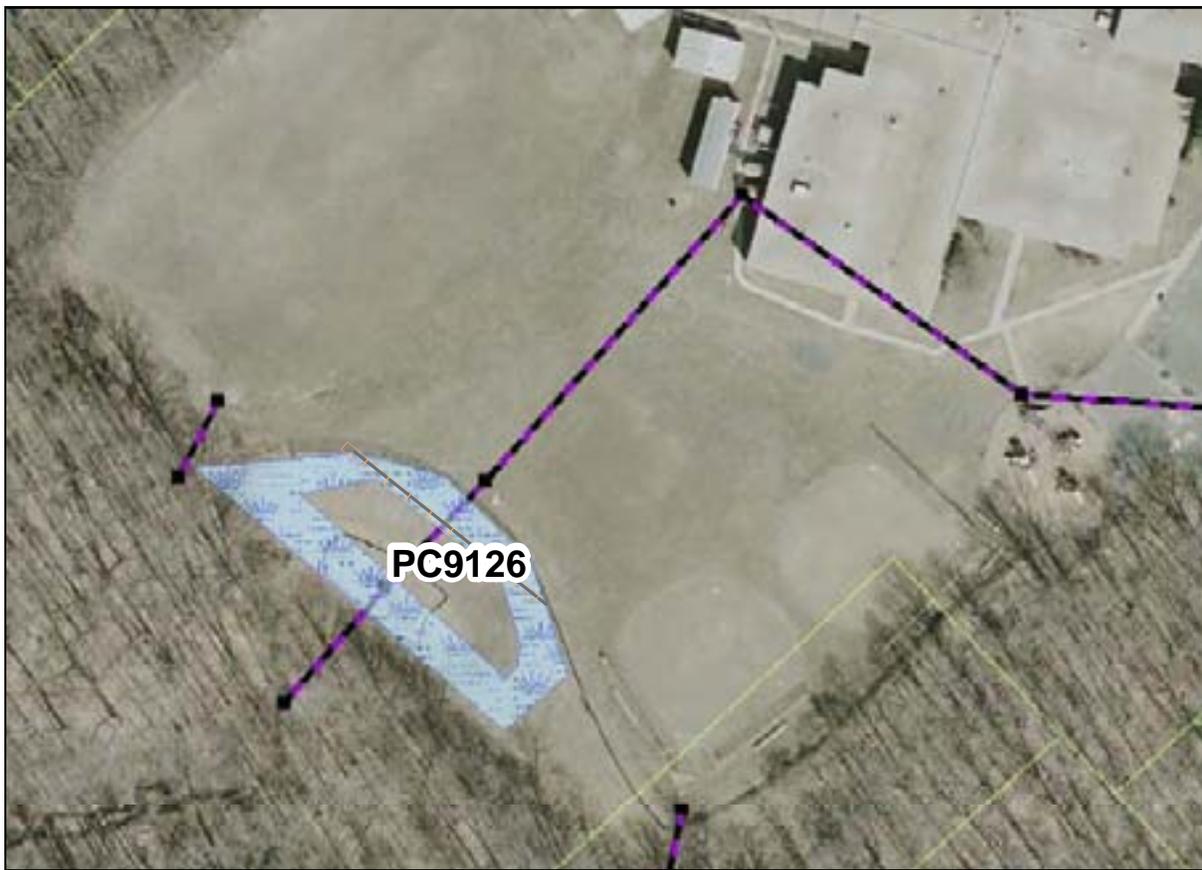
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	2	AC	\$8,500	\$17,000
Grading and Excavation	4000	CY	\$35	\$140,000
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	150	CY	\$50	\$7,500
Outflow Pipe	280	LF	\$125	\$35,000
Rip Rap Stabilization	125	SY	\$100	\$12,500
Organic Compost Soil Amendment	800	CY	\$40	\$32,000
Plantings	1	LS	5%	\$12,950
Ancillary Items	1	LS	5%	\$12,950
Erosion and Sediment Control	1	LS	10%	\$25,900
Base Construction Cost				\$310,800
Mobilization (5%)				\$15,540
Subtotal 1				\$326,340
Contingency (25%)				\$81,585
Subtotal 2				\$407,925
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$183,566
Total				\$591,491
Estimated Project Cost				\$600,000

PC9126 Stormwater Pond Retrofit



Address: 16130 Shiplett Blvd, Burke, Virginia
Location: White Oaks Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0784 13 A
Control Type: Water quality and quantity control
Drainage Area: 4.60 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the retrofit of an existing pond at White Oaks Elementary School to create an extended detention basin with a sediment forebay. The pond size will be increased and the outfall structure will be modified to increase the stormwater detention time. This will improve the stormwater runoff quality and quantity. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



	SW Pond Retrofit		Storm Network		Sediment Forebay		Property Line		Streams
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Project Benefits: This retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure which promotes the settlement of pollutant particulates. Below are the project’s estimated pollutant removal amounts.

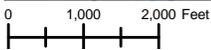
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.45	7.21	1.66

Project Design Considerations: An additional inlet or swale on the east side of the playground should be added to capture runoff and direct it to the existing dry pond. The forebay should be sized as approximately 10% of the pond area. There is ample room for expansion and a significant amount of impervious areas contributing runoff. The retrofit will add a discharge control structure to increase the detention time of the stormwater in the pond. An aquatic bench will be added as shown on the project area map. The planting plan will include wetland plants and buffer areas that will promote greater wildlife and water fowl use. The Watershed Advisory Group supports this project and says this project is important.

Cost:

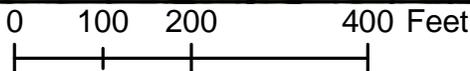
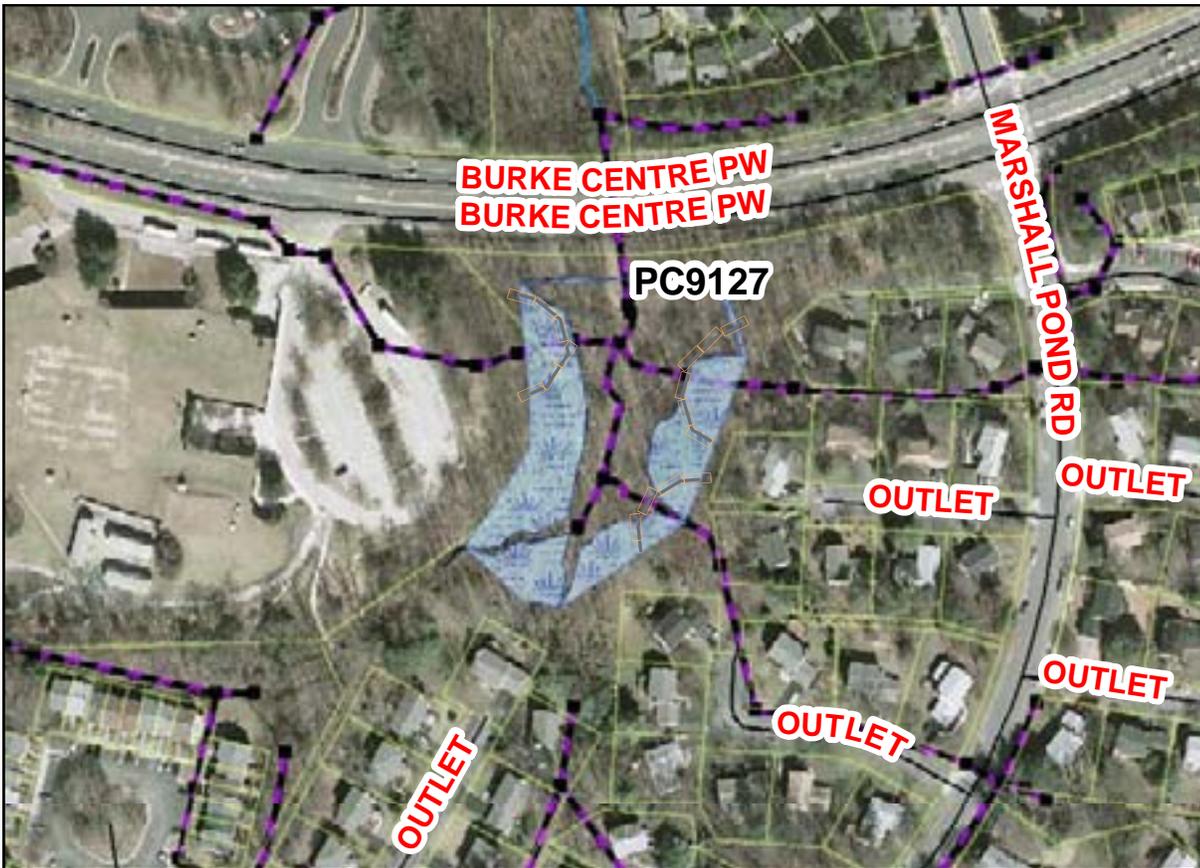
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.2	AC	\$8,500	\$1,700
Grading and Excavation	1000	CY	\$35	\$35,000
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	160	CY	\$40	\$6,400
Plantings	1	LS	5%	\$3,624
Ancillary Items	1	LS	5%	\$3,624
Erosion and Sediment Control	1	LS	10%	\$7,248
Base Construction Cost				\$86,970
Mobilization (5%)				\$4,349
Subtotal 1				\$91,319
Contingency (25%)				\$22,830
Subtotal 2				\$114,148
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$51,367
Total				\$165,515
Estimated Project Cost				\$170,000

PC9127 Stormwater Pond Retrofit



Address: Next to 6000 Burke Centre Pkwy, Burke, Virginia
Location: Pond near Terre Centre Elementary School
Land Owner: Private - Burke Centre Conservancy
PIN: 0774 05 E2, 0774 01 0028A
Control Type: Water quality and quantity control
Drainage Area: 57.22 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Large dry pond receives runoff from a large drainage area that includes Terre Centre Elementary School to the west and a residential neighborhood to the east. The primary indicators are pollutants such as nitrogen, phosphorus and total suspended solids. Pond will be retrofitted to be an extended detention dry pond with sediment forebays at the inlet pipes. Pond outfalls to the north under Burke Centre Parkway into a stream.



Project Benefits: This retrofit will modify the existing pond to increase pollutant removal and provide adequate downstream channel protection. The retrofit will create a better-functioning environment for gravitational settling, biological uptake and microbial activity by increasing the time the stormwater is in the pond. Vegetation will be planted to improve pond area and create a buffer. Below are the project’s estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.25	60.61	11.85

Project Design Considerations: This pond has a highly impervious drainage area with significant runoff from closed systems. The area directly surrounding the pond is wooded. Retrofit should not require significant tree removal. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15’ off of the top of bank. The pond is on land owned by Burke Centre Conservancy.

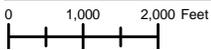
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.9	AC	\$8,500	\$7,650
Grading and Excavation	4500	CY	\$35	\$157,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	100	CY	\$50	\$5,000
Outflow Pipe	125	LF	\$125	\$15,625
Rip Rap Stabilization	250	SY	\$100	\$25,000
Organic Compost Soil Amendment	300	CY	\$40	\$12,000
Plantings	1	LS	5%	\$11,889
Ancillary Items	1	LS	5%	\$11,889
Erosion and Sediment Control	1	LS	10%	\$23,778
Base Construction Cost				\$285,330
Mobilization (5%)				\$14,267
Subtotal 1				\$299,597
Contingency (25%)				\$74,899
Subtotal 2				\$374,496
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$168,523
Total				\$543,019
Estimated Project Cost				\$550,000

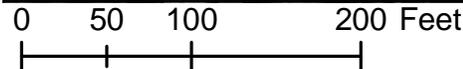
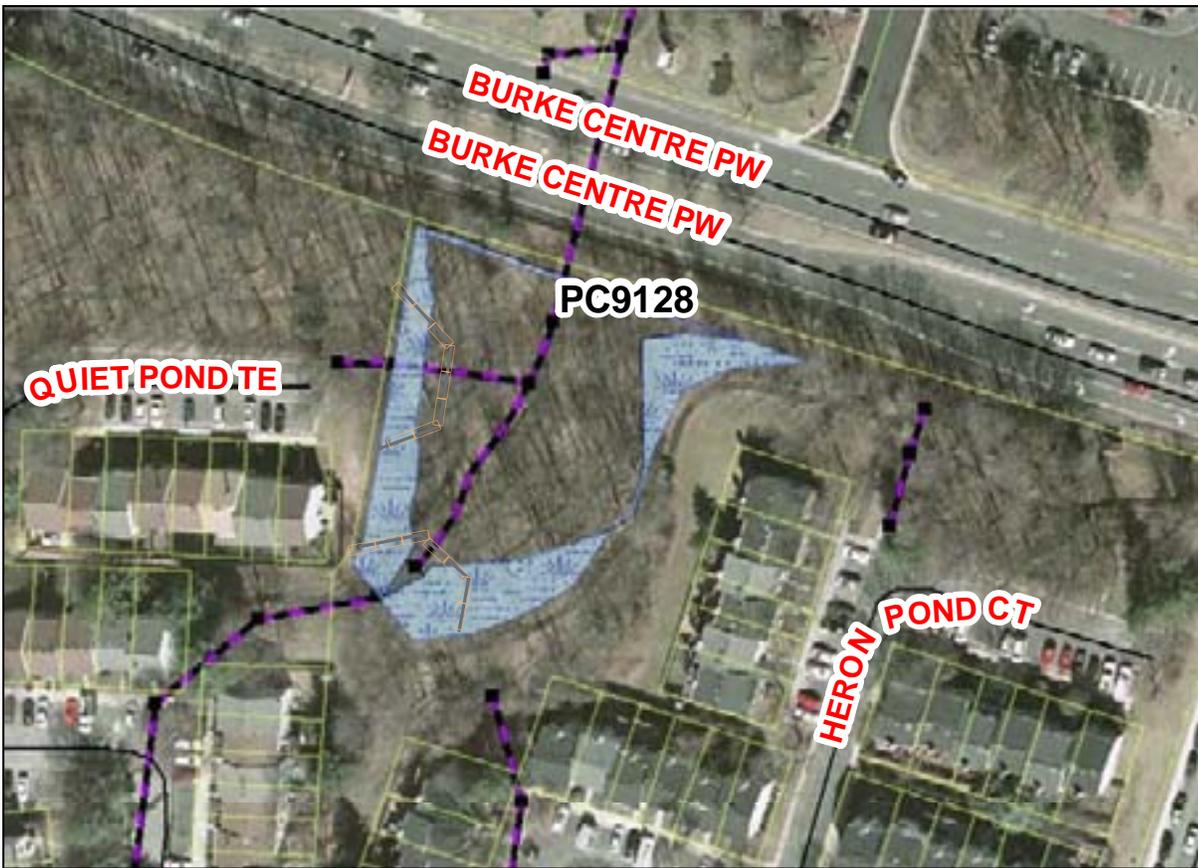
PC9128 Stormwater Pond Retrofit



Address: 6000 Burke Commons Rd., Burke, Virginia
Location: Across from Wal-Mart Supercenter 0174DP
Land Owner: Private – Burke Centre Conservancy
PIN: 0774 10 H1
Control Type: Water quality and quantity control
Drainage Area: 18.58 acres
Receiving Waters: Tributary of Sideburn Branch



Description: The project proposes to retrofit an existing pond to create an extended detention dry pond with sediment forebays. The pond receives stormwater from a closed pipe system that collects runoff from adjacent residential neighborhood. The pond outfalls across Burke Centre Parkway through the Wal-Mart parking lot storm sewer and discharges into a stream across Roberts Parkway.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
- Streams

Project Benefits: Modifying the existing control structure to increase the detention time will allow for more sediment deposition and downstream channel protection. Installing the sediment forebays will reduce debris and coarse sediment in the pond and will reduce required maintenance. Area draining to pond is large and very impervious. This project will help remove more pollutants before entering streams. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.50	28.84	5.45

Project Design Considerations: Pond is located behind existing dense residential townhouse neighborhood and across from large commercial development. Pond is on private property. According to County records, there are no onsite easements. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation. Paved path in wooded area near pond should not be disturbed.

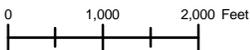
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.3	AC	\$8,500	\$2,550
Grading and Excavation	1650	CY	\$35	\$57,750
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	65	CY	\$50	\$3,250
Outflow Pipe	90	LF	\$125	\$11,250
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	200	CY	\$40	\$8,000
Plantings	1	LS	5%	\$5,140
Ancillary Items	1	LS	5%	\$5,140
Erosion and Sediment Control	1	LS	10%	\$10,280
Base Construction Cost				\$123,360
Mobilization (5%)				\$6,168
Subtotal 1				\$129,528
Contingency (25%)				\$32,382
Subtotal 2				\$161,910
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$72,860
Total				\$234,770
Estimated Project Cost				\$240,000

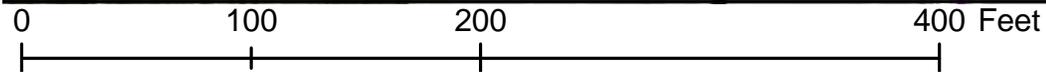
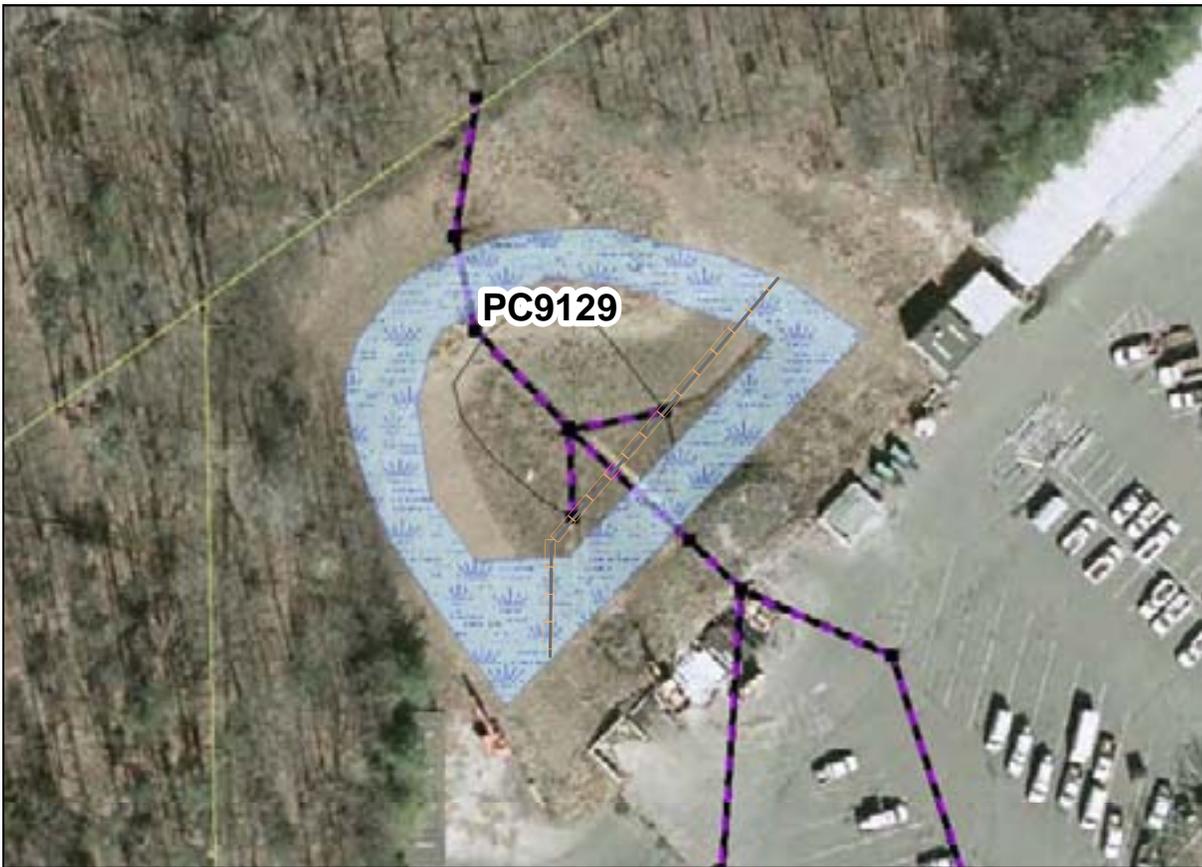
PC9129 Stormwater Pond Retrofit



Address: 6000 Freds Oak Road, Burke, Virginia
Location: Fairfax Co. Wastewater Collection
Land Owner: Public/Local – Fairfax County Government
PIN: 0773 01 0013
Control Type: Water quality and quantity control
Drainage Area: 10.67 acres
Receiving Waters: Tributary of Sideburn Branch



Description: Fairfax County Wastewater Collection Division parking lot drains from south to north. Runoff from the parking lots is piped into the pond on the north side of the site, which outfalls to an adjacent stream. This project proposes to retrofit the existing dry pond by increasing the pond's size and installing a discharge structure that will increase detention time for stormwater runoff.



- SW Pond Retrofit
- Storm Network
- Sediment Forebay
- Property Line
- Streams

Project Benefits: This pond retrofit will allow the pond to better treat stormwater runoff from more frequent smaller storms which has higher pollutant concentrations than larger storms. This project will promote particulate pollutant deposition, biological uptake of pollutants, and downstream erosion protection. The sediment forebay will provide additional treatment for the pond.. Since this pond already provides some water quality the TSS removal will remain the same, but he TN removal and TP removal will increase by 25% and 10% respectively.

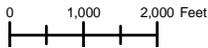
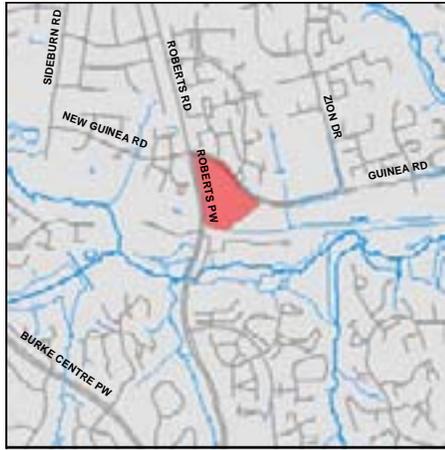
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0	20.6	0.9

Project Design Considerations: Significant impervious area is piped directly from the parking lot. Installing a sediment forebay that is 10% of the area of the pond would prevent sediment fines from entering the pond and clogging the basin floor. The existing pond has concrete pilot channels and lacks a planting plan to promote pollutant uptake and stormwater infiltration. The pond retrofit will remove the pilot channels and will include a planting plan to create a stormwater wetlands bottom. There appears to be room to expand the pond without impacting existing mature vegetation.

Cost:

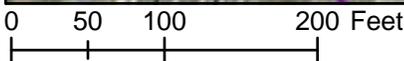
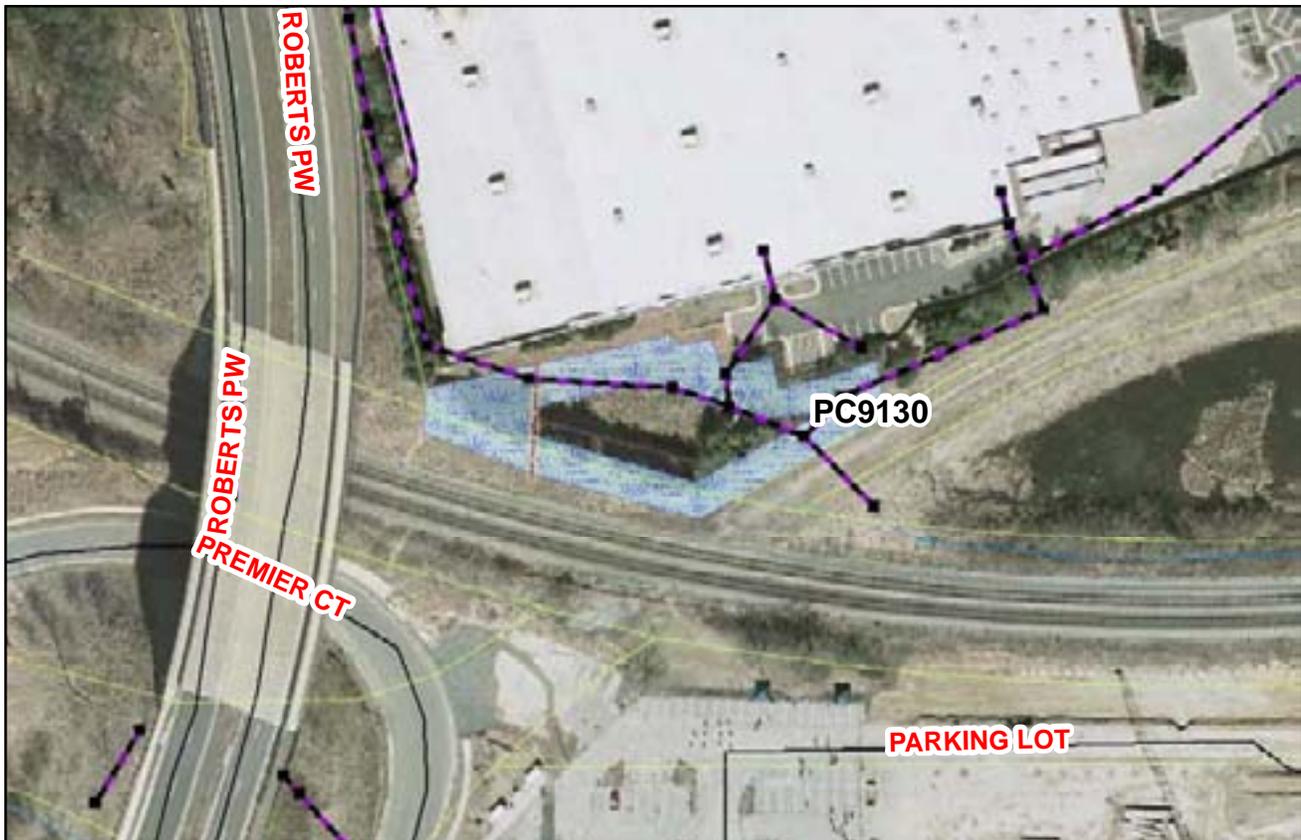
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	1800	CY	\$35	\$63,000
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	120	LF	\$125	\$15,000
Rip Rap Stabilization	120	SY	\$100	\$12,000
Organic Compost Soil Amendment	275	CY	\$40	\$11,000
Plantings	1	LS	5%	\$6,074
Ancillary Items	1	LS	5%	\$6,074
Erosion and Sediment Control	1	LS	10%	\$12,148
Base Construction Cost				\$145,770
Mobilization (5%)				\$7,289
Subtotal 1				\$153,059
Contingency (25%)				\$38,265
Subtotal 2				\$191,323
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$86,095
Total				\$277,419
Estimated Project Cost				\$280,000

PC9130 Stormwater Pond Retrofit



Address: 10301 New Guinea Road, Fairfax, Virginia
Location: New Guinea Road Target
Land Owner: Private – Marshall Field Stores, Inc, Target Corporation
PIN: 0772 01 0013C
Control Type: Water quality and quantity control
Drainage Area: 12.24 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This project proposes to retrofit an existing dry pond into an extended detention pond with a sediment forebay. The pond is located at the south side of the Target shopping center. Stormwater runoff is collected in the parking lot through storm inlets and conveyed to the existing pond for treatment. This retrofit will improve stormwater runoff quality by using a sediment forebay to pretreat runoff. The pond's detention time will be increased to allow more pollutants to settle out and break down through biological processes.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: The addition of the sediment forebay will provide for more particulate pollution deposition. The retrofit of the pond will increase the detention time of stormwater before it is released downstream. This will help protect the channel downstream of the pond. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.27	26.75	4.21

Project Design Considerations: The vegetation in the pond is dead and the pond has a lot of trash in it. The outfall pipe seems to be half full of trash and other debris. The pond limits are confined by a road on the west and south and by a building on the north. The only storage expansion available is to the east. The sediment forebays and regular maintenance would help with the trash and debris issues. This project would include removal of the concrete pilot channels and landscaping plan that would try to incorporate the existing vegetation. Records show the existing pond is in an easement.

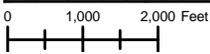
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.35	AC	\$8,500	\$2,975
Grading and Excavation	1300	CY	\$35	\$45,500
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	150	LF	\$125	\$18,750
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	275	CY	\$40	\$11,000
Plantings	1	LS	5%	\$4,974
Ancillary Items	1	LS	5%	\$4,974
Erosion and Sediment Control	1	LS	10%	\$9,948
Base Construction Cost				\$119,370
Mobilization (5%)				\$5,969
Subtotal 1				\$125,339
Contingency (25%)				\$31,335
Subtotal 2				\$156,673
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$70,503
Total				\$227,176
Estimated Project Cost				\$230,000

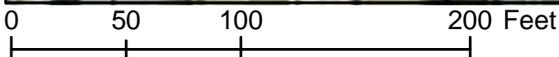
PC9131 Stormwater Pond Retrofit



Address: Behind 10268 Colony Park Drive, Fairfax, Virginia
Location: Pond near Colony Park Dr.
Land Owner: Private – Woodlynn Community Association
PIN: 0772 05 F
Control Type: Water quality and quantity control
Drainage Area: 47.26 acres
Receiving Waters: Tributary of Sideburn Branch



Description: This large dry pond behind a residential community is currently very well vegetated. This pond retrofit will modify the existing discharge structure to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The large drainage area captures runoff from dense residential, single family residential, roadways and wooded areas.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: Extending the pond detention time will help reduce downstream erosion and promote particulate pollutant settlement in the pond. The new forebay will capture a majority of the sediment in the roadway runoff to the pond, reducing major pond maintenance and improving removal of particulate pollutants. Below are the project's estimated pollutant removal amounts.

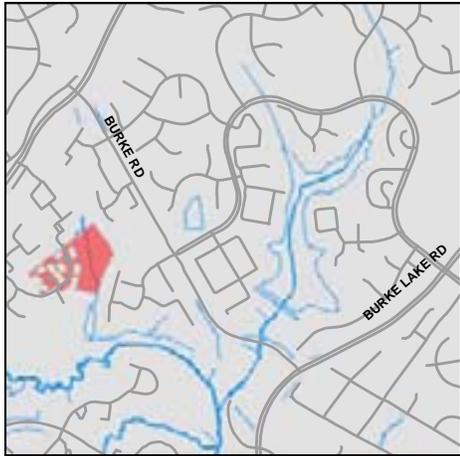
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
3.26	60.53	11.44

Project Design Considerations: The pond is entirely on Woodlynne Community Association property. Records show no easements. Sediment forebay should account for approximately 10% of pond area. Due to increasing the stormwater's detention time and installing the sediment forebay the pond size will probably need to be enlarged as shown on the project area map. Area is very well vegetated. Efforts must be made to minimize impacts to mature vegetation, however some impacts will be made. The landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and all access areas.

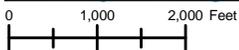
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	1200	CY	\$35	\$42,000
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	30	CY	\$50	\$1,500
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	100	SY	\$100	\$10,000
Organic Compost Soil Amendment	200	CY	\$40	\$8,000
Plantings	1	LS	5%	\$4,400
Ancillary Items	1	LS	5%	\$4,400
Erosion and Sediment Control	1	LS	10%	\$8,800
Base Construction Cost				\$105,600
Mobilization (5%)				\$5,280
Subtotal 1				\$110,880
Contingency (25%)				\$27,720
Subtotal 2				\$138,600
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$62,370
Total				\$200,970
Estimated Project Cost				\$210,000

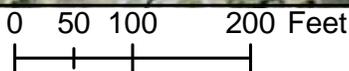
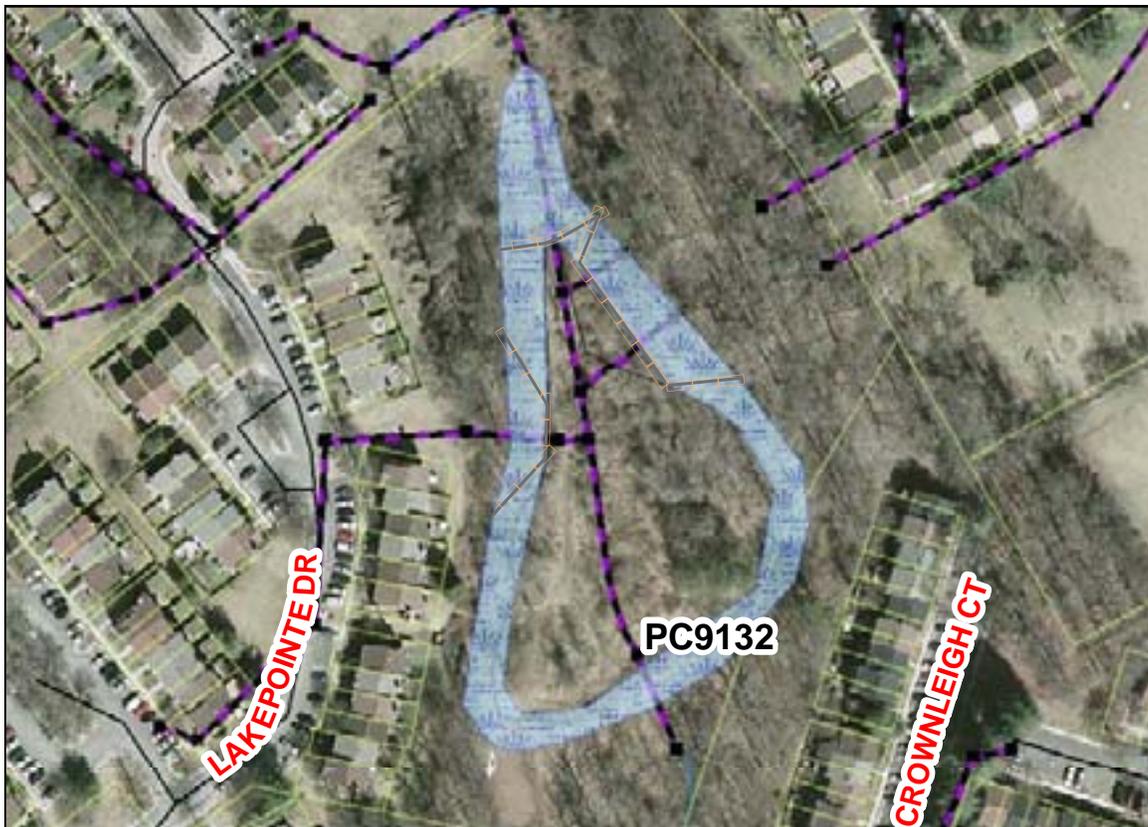
PC9132 Stormwater Pond Retrofit



Address: 9713 Lakepointe Dr., Burke, Virginia
Location: Pond behind Houses along Lakepointe Dr.
Land Owner: Private – Lakepointe Townhome Association
PIN: 0781 16 H
Control Type: Water quality and quantity control
Drainage Area: 71.39 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project is the large pond behind Lakepointe Drive. The project proposes the retrofit of the pond to create an extended detention dry pond with a sediment forebay. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. The retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate settlement.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: The retrofit will modify the existing pond to provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which enables particulate settlement. Sediment forebays will reduce debris and coarse sediment in the pond. This will reduce costly maintenance and improve water quality. The planting in the proposed aquatic bench will increase the ponds biological uptake of pollutants, such as nitrogen and phosphorus. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
5.89	106.34	20.62

Project Design Considerations: This project is located on private property owned by Lakepointe Townhome Association. Potential for pond expansion is diminished due to existing vegetation. Efforts should be made to have minimal impacts to existing mature vegetation. Sediment forebays should be constructed for inflows that drain 10% or more of the contributing drainage area. The total area of the sediment forebays should be approximately 10% of the pond's surface.

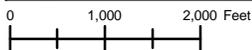
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.98	AC	\$8,500	\$8,330
Grading and Excavation	3500	CY	\$35	\$122,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	100	CY	\$50	\$5,000
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	150	SY	\$100	\$15,000
Organic Compost Soil Amendment	750	CY	\$40	\$30,000
Plantings	1	LS	5%	\$10,260
Ancillary Items	1	LS	5%	\$10,260
Erosion and Sediment Control	1	LS	10%	\$20,521
Base Construction Cost				\$246,246
Mobilization (5%)				\$12,312
Subtotal 1				\$258,558
Contingency (25%)				\$64,640
Subtotal 2				\$323,198
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$145,439
Total				\$468,637
Estimated Project Cost				\$470,000

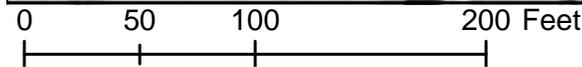
PC9133 Stormwater Pond Retrofit



Address: 9200 Burke Lake Rd., Burke, Virginia
Location: Lake Braddock Secondary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0782 07 B
Control Type: Water quality and quantity control
Drainage Area: 13.96 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing pond at Lake Braddock Secondary School to create an extended detention dry pond with a sediment forebay. Pond receives runoff from a fairly large impervious drainage area, including the school and adjacent residential area to the north. The pond will be retrofitted into an extended detention pond by modifying the existing discharge structure to increase the time stormwater remains in the pond. The pond size will be enlarged to handle the larger detention volume. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



- SW Pond Retrofit
- Storm Network
- Sediment Forebay
- Property Line
- Streams

Project Benefits: Extending the pond detention time will provide better downstream channel protection and promote settlement of particulate pollutants. Installing a sediment forebay will reduce the debris and coarse sediment in the pond, which will reduce pond maintenance. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.69	10.06	2.23

Project Design Considerations: Pond is located at Lake Braddock Secondary School. County records show no existing easements for the pond. The existing pond is behind a fence close to playing fields. The sediment forebay should account for approximately 10% of the pond area. The pond size would be increased as shown on the project map. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation.

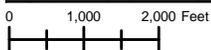
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	510	CY	\$35	\$17,850
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	20	CY	\$50	\$1,000
Outflow Pipe	75	LF	\$125	\$9,375
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	65	CY	\$40	\$2,600
Plantings	1	LS	5%	\$2,459
Ancillary Items	1	LS	5%	\$2,459
Erosion and Sediment Control	1	LS	10%	\$4,918
Base Construction Cost				\$59,010
Mobilization (5%)				\$2,951
Subtotal 1				\$61,961
Contingency (25%)				\$15,490
Subtotal 2				\$77,451
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$34,853
Total				\$112,303
Estimated Project Cost				\$120,000

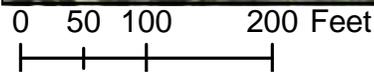
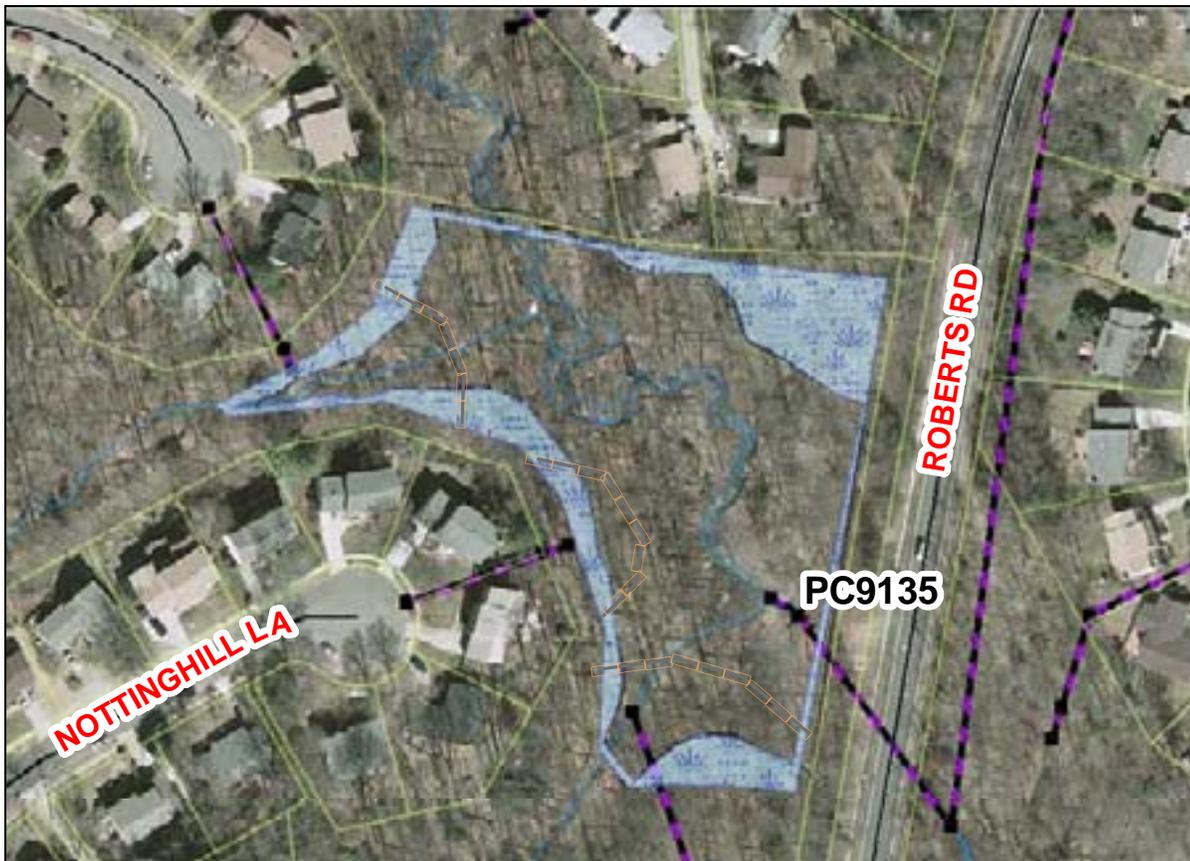
PC9135 Stormwater Pond Retrofit



Address: Behind 5220 Nottinghill Lane, Fairfax, Virginia
Location: Pond along Roberts Road
Land Owner: Private – Kings Park West Community Association
PIN: 0684 09 C
Control Type: Water quality and quantity control
Drainage Area: 145.21 acres
Receiving Waters: Tributary of Rabbit Branch



Description: A dry pond retrofit is proposed east of Nottinghill Lane and west of Roberts Road. The pond is upstream of a culvert under Roberts Road, which outfalls to a stream on the other side of the road. This project proposes to create an extended detention dry pond with sediment forebay. The primary indicators are nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will provide adequate downstream channel protection and allow for better function of temporary ponding using a control structure, which promotes deposition of particulate pollutants. Implementation of a sediment forebay will increase the pollutant removal benefits of the stormwater pond. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
7.95	106.09	23.07

Project Design Considerations: Very large drainage area outfalling to the pond, including large school. Pond is on private property owned by Kings Park West Community Association and according to County-provided GIS data, there are no easements on site. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank. Efforts should be made to minimize impacts to existing mature vegetation.

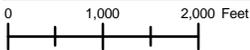
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.75	AC	\$8,500	\$6,375
Grading and Excavation	4400	CY	\$35	\$154,000
Structural BMP Retrofit and Incidentals	1	LS	\$20,000	\$20,000
Embankment	115	CY	\$50	\$5,750
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	200	SY	\$100	\$20,000
Organic Compost Soil Amendment	550	CY	\$40	\$22,000
Plantings	1	LS	5%	\$11,719
Ancillary Items	1	LS	5%	\$11,719
Erosion and Sediment Control	1	LS	10%	\$23,438
Base Construction Cost				\$281,250
Mobilization (5%)				\$14,063
Subtotal 1				\$295,313
Contingency (25%)				\$73,828
Subtotal 2				\$369,141
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$166,113
Total				\$535,254
Estimated Project Cost				\$540,000

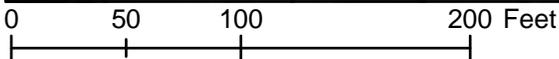
PC9136 Stormwater Pond Retrofit



Address: Behind 5120 Dahlgreen Place, Burke, Virginia
Location: Dahlgreen Place Playground
Land Owner: Private – Queens Gate Homeowners Association, Kings Grove Community Association
PIN: 0693 16 B, 0693 10 A1
Control Type: Water quality and quantity control
Drainage Area: 8.70 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the retrofit of an existing pond near Dahlgreen Place Playground. The existing pond will be modified to create an extended detention dry pond with a sediment forebay. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. The retrofit will modify the existing control structure to increase the detention time of stormwater runoff. This will reduce downstream channel erosion and allow more time for particulate pollutants to settle out.



Project Benefits: The enlarged pond and modified outfall structure will increase the detention time for stormwater. This will help lessen stream erosion downstream. Also, the increased detention time will increase pollutant settling and biological uptake of the pollutants. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.33	6.61	1.19

Project Design Considerations: The pond size will probably need to be increased to provide adequate detention time. The current pond size is limited on the north, west and south by single family homes. Therefore the pond will have to be enlarged on the east side. Records show that the pond is located in a storm drain easement. The easement will have to be enlarged as well. To access the pond on the north side an easement on the Queens Gate Homeowners Association open space may need to be obtained. A channel is deeply cut on the side of pond. This will have to be addressed. The pond has two inflows and will require a sediment forebay, and the existing control structure will need to be modified. The existing vegetation should be retained as much as possible when the pond is expanded. The landscaping plan should allow the pond to mature into a native forest in the right places yet keep mowable turf along the embankment and all access areas.

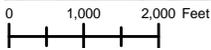
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.22	AC	\$8,500	\$1,870
Grading and Excavation	1370	CY	\$35	\$47,950
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	55	CY	\$50	\$2,750
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	170	CY	\$40	\$6,800
Plantings	1	LS	5%	\$4,031
Ancillary Items	1	LS	5%	\$4,031
Erosion and Sediment Control	1	LS	10%	\$8,062
Base Construction Cost				\$96,744
Mobilization (5%)				\$4,837
Subtotal 1				\$101,581
Contingency (25%)				\$25,395
Subtotal 2				\$126,977
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$57,139
Total				\$184,116
Estimated Project Cost				\$190,000

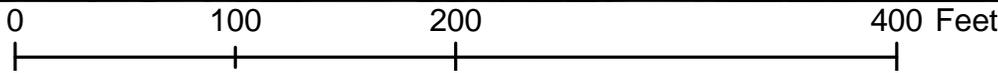
PC9138 Stormwater Pond Retrofit



Address: Behind 10305 Nantucket Court, Fairfax, Virginia
Location: Pond near Nantucket Court
Land Owner: Private – Kings Park West Community Association
PIN: 0682 05 A
Control Type: Water quality and quantity control
Drainage Area: 4.73 acres
Receiving Waters: Tributary of Rabbit Branch



Description: The proposed stormwater pond retrofit is east of Nantucket Court and northwest of Allenby Road. The pond, 0036DP, collects runoff from adjacent residential neighborhoods. This project proposes to retrofit the pond to create an extended detention dry pond with sediment forebay. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: Extending the pond's detention time will provide better downstream channel protection and promote settlement of particulate pollutants. Installing a sediment forebay will decrease debris and coarse sediment in the pond, which will increase the benefits of the stormwater pond. Below are the project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.05	1.08	0.20

Project Design Considerations: Pond is on property owned by King Park West Community Association. There is adequate room on site for pond expansion, to the north and east, and some to the west. See hatched area on project map. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

Cost:

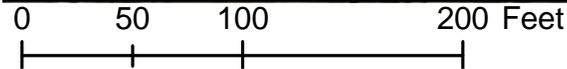
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.13	AC	\$8,500	\$1,105
Grading and Excavation	840	CY	\$35	\$29,400
Structural BMP Retrofit and Incidentals	1	LS	\$10,000	\$10,000
Embankment	25	CY	\$50	\$1,250
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	50	SY	\$100	\$5,000
Organic Compost Soil Amendment	100	CY	\$40	\$4,000
Plantings	1	LS	5%	\$2,850
Ancillary Items	1	LS	5%	\$2,850
Erosion and Sediment Control	1	LS	10%	\$5,701
Base Construction Cost				\$68,406
Mobilization (5%)				\$3,420
Subtotal 1				\$71,826
Contingency (25%)				\$17,957
Subtotal 2				\$89,783
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$40,402
Total				\$130,185
Estimated Project Cost				\$140,000

PC9139 Stormwater Pond Retrofit



Address: 10697 Braddock Rd., Fairfax, Virginia
Location: University Mall Shopping Center
Land Owner: Private – Private Owner
PIN: 0681 01 0009
Control Type: Water quality and quantity control
Drainage Area: 21.85 acres
Receiving Waters: Tributary of Sideburn Branch

Description: Existing pond receives runoff from shopping center and parking lot. The stormwater is conveyed in a closed system from north to west. Runoff is also received from a subdivision to the east. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. This project proposes retrofitting the existing pond to create an extended detention dry pond with sediment forebays.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: Extending the pond's detention time will provide better channel protection and promote particulate pollutant settlement. Installing the sediment forebays will reduce debris and coarse sediment in the pond and will improve the infiltration of the pond. Since this pond already provides some water quality the TSS removal will remain the same, but the TN removal and TP removal will increase by 25% and 10% respectively. Below are the project's estimated pollutant removal amounts. Below are the project's estimated pollutant removal amounts

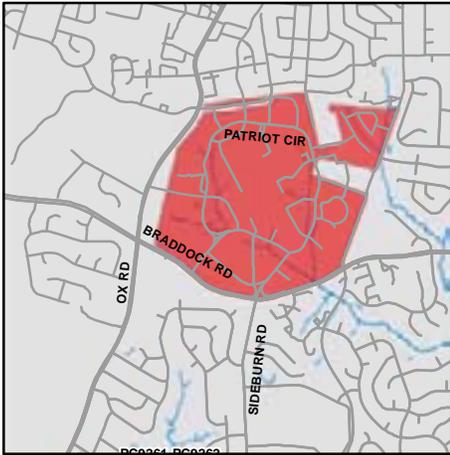
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.00	35.38	1.59

Project Design Considerations: Project is on private property. Property owner same as that of the shopping center area. Records show no easements on or near the property. Pond is behind a large brick fence. A large amount of impervious area drains to the pond from shopping center buildings and parking area. Efforts should be made to minimize impacts to existing mature vegetation. The sediment forebays should account for approximately 10% of the pond area. The vegetative buffer should be 10-15' off of the top of bank.

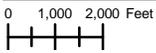
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	1500	CY	\$35	\$52,500
Structural BMP Retrofit and Incidentals	1	LS	\$15,000	\$15,000
Embankment	30	CY	\$50	\$1,500
Outflow Pipe	50	LF	\$125	\$6,250
Rip Rap Stabilization	75	SY	\$100	\$7,500
Organic Compost Soil Amendment	190	CY	\$40	\$7,600
Plantings	1	LS	5%	\$4,624
Ancillary Items	1	LS	5%	\$4,624
Erosion and Sediment Control	1	LS	10%	\$9,248
Base Construction Cost				\$110,970
Mobilization (5%)				\$5,549
Subtotal 1				\$116,519
Contingency (25%)				\$29,130
Subtotal 2				\$145,648
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$65,542
Total				\$211,190
Estimated Project Cost				\$220,000

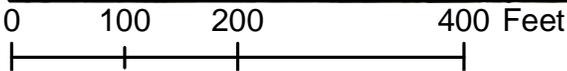
PC9140 Stormwater Pond Retrofit



Address: Intersection of Mason Pond Dr. and Roanoke River Lane, Fairfax, Virginia
Location: Pond near Roanoke River Lane
Land Owner: Public - George Mason University
PIN: 0682 01 0003
Control Type: Water quality and quantity control
Drainage Area: 140.03 acres
Receiving Waters: Tributary of Rabbit Branch



Description: This project proposes the retrofit of an existing wet pond at George Mason University, near Mason Pond Drive and Roanoke River Lane, to create a wetland system with sediment forebays and bench planting. The sediment forebays will provide pretreatment of stormwater runoff and the bench planting will increase the pollutant removal. The primary problem indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This retrofit will modify the existing pond to increase pollutant removal and to provide adequate channel protection above the permanent pool. It will also create an environment for gravitational settling, biological uptake and microbial activity. Below are the project's estimated pollutant removal amounts.

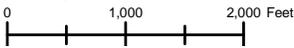
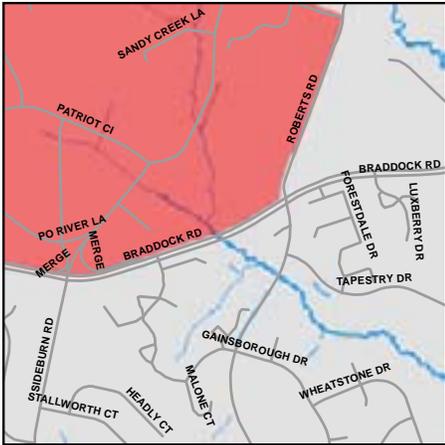
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
8.67	174.61	48.44

Project Design Considerations: A significant amount of impervious area drains to this pond, so additional treatment would be beneficial. The sediment forebays should be 10% as large as the pond. The aquatic bench should be planted 10 to 15' inward from the water's edge. The vegetative buffer should be 10 to 15' outward from the water's edge. Records do not currently show an existing easement, but the entire area is owned by George Mason University. The pond receives runoff from three pipes, and therefore would require the construction of three sediment forebays. The forebays would be created by adding berms in the pond (see map). The area of the bench plantings is shown on the map by the lighter portion of the pond on the perimeter. The existing pond is the darker inner portion.

Cost:

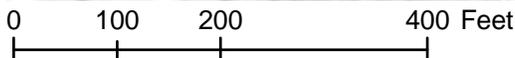
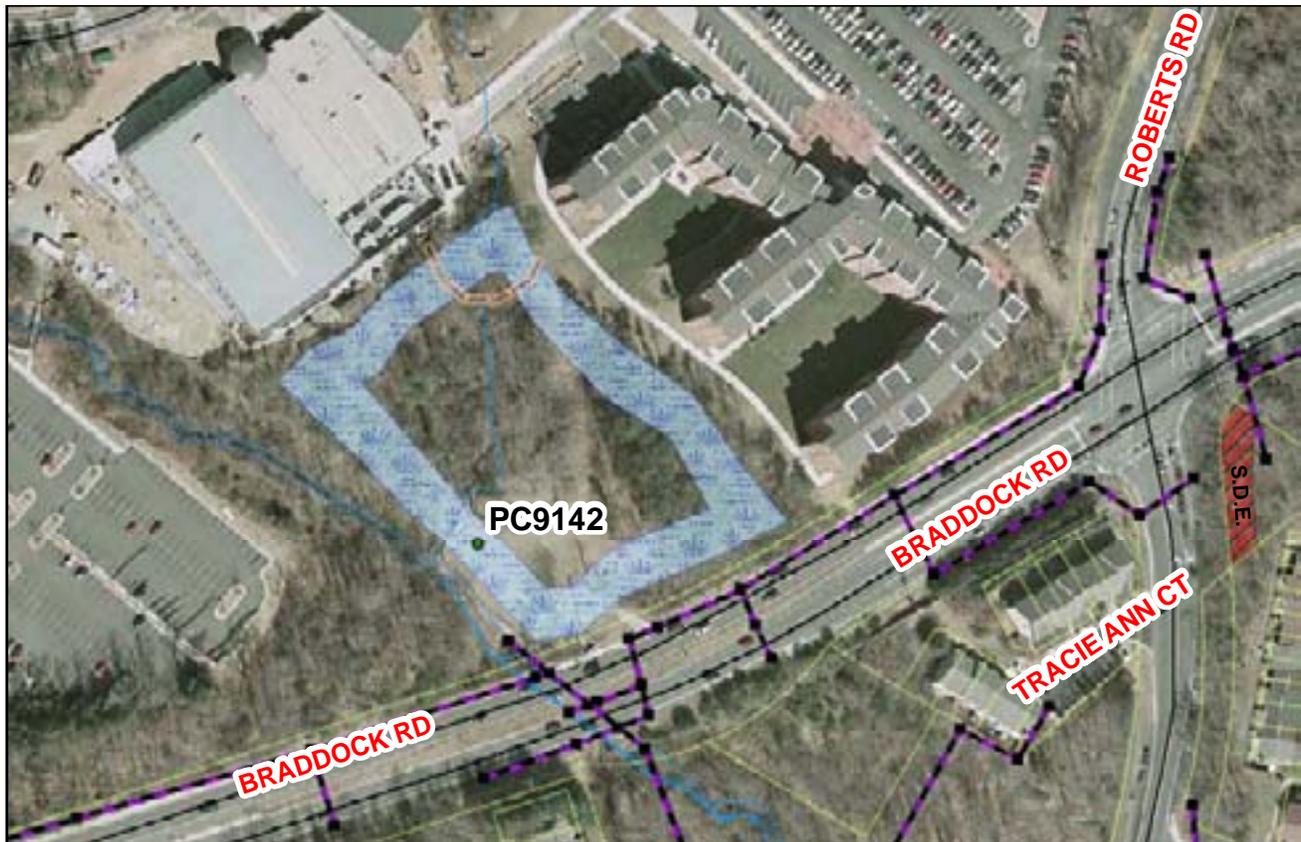
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.65	AC	\$8,500	\$5,525
Grading and Excavation	1000	CY	\$35	\$35,000
Structural BMP Retrofit and Incidentals	1	LS	\$20,000	\$20,000
Embankment	50	CY	\$50	\$2,500
Outflow Pipe	150	LF	\$125	\$18,750
Rip Rap Stabilization	90	SY	\$100	\$9,000
Organic Compost Soil Amendment	500	CY	\$40	\$20,000
Plantings	1	LS	5%	\$5,539
Ancillary Items	1	LS	5%	\$5,539
Erosion and Sediment Control	1	LS	10%	\$11,078
Base Construction Cost				\$132,930
Mobilization (5%)				\$6,647
Subtotal 1				\$139,577
Contingency (25%)				\$34,894
Subtotal 2				\$174,471
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$78,512
Total				\$252,982
Estimated Project Cost				\$260,000

PC9142 New Stormwater Pond



Address: Northwest of Roberts and Braddock Roads intersection, behind Potomac Heights, Fairfax, Virginia
Location: Regional pond #3 near Lake Meadow Dr.
Land Owner: Private – The Rector and Visitors of George Mason University
PIN: 0682 01 0003
Control Type: Water quality and quantity control
Drainage Area: 103.7 acres
Receiving Waters: Tributary of Rabbit Branch

Description: This project proposes to create a new stormwater pond at George Mason University, northwest of Roberts Road and Braddock Road. The project is located at a depressed area near the confluence of two streams just north of a culvert that goes under Braddock Road. This project will create a wetland system inline with the northeast stream and will treat the stormwater runoff with a sediment forebay and bench planting in the pond. The sediment forebays will provide pretreatment and the bench planting will increase the pollutant removal.



-  SW Pond Retrofit
-  Storm Network
-  Sediment Forebay
-  Property Line
-  Streams

Project Benefits: This project will slow down the speed that stormwater travels down the impaired stream and will increase pollutant particulate settlement and provide a better environment for biological uptake and microbial activity. The proposed wetland system will help prevent resuspension of sediments and other pollutants. Also increasing the time stormwater stays in the facility will provide better channel protection. Lastly, installing the sediment forebay will reduce debris and coarse sediment in the facility and will reduce maintenance requirements. Below are the project's estimated pollutant removal amounts.

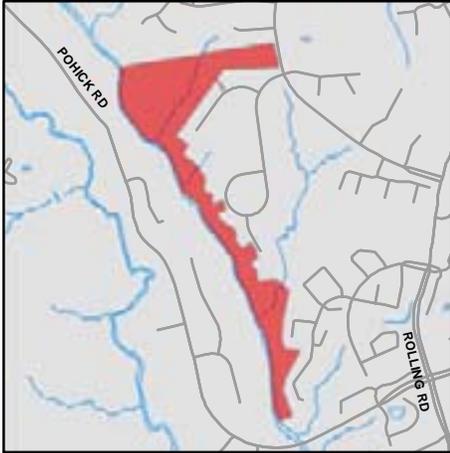
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
6.50	130.40	36.20

Project Design Considerations: This Property is owned by George Mason University, and there is currently no drainage easement, according to County records. The sediment forebay should be 10% of the surface area of the pond. The aquatic bench should be planted 10 to 15' inward from top of bank. The vegetative buffer should be 10 to 15' outward from the top of bank. Further modeling and site investigation will be needed to verify the proper pond sizing to treat the stormwater flows from the stream.

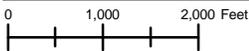
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Access Road	100	SY	\$25	\$2,500
Access Road Gate	1	EA	\$2,500	\$2,500
Clear and Grub	2.32	AC	\$8,500	\$19,720
Grading and Excavation	14971	CY	\$35	\$523,985
Structural BMP Retrofit and Incidentals	1	LS	\$20,000	\$20,000
Embankment	377	CY	\$50	\$18,850
New Storm Pipe	100	LF	\$200	\$20,000
Organic Compost Soil Amendment	944	CY	\$40	\$37,760
Plantings	1	LS	5%	\$32,266
Ancillary Items	1	LS	5%	\$32,266
Erosion and Sediment Control	1	LS	10%	\$64,532
Base Construction Cost				\$769,378
Mobilization (5%)				\$38,469
Subtotal 1				\$807,847
Contingency (25%)				\$201,962
Subtotal 2				\$1,009,809
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$454,414
Total				\$1,464,223
Estimated Project Cost				\$1,470,000

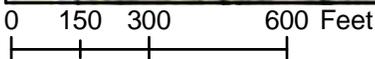
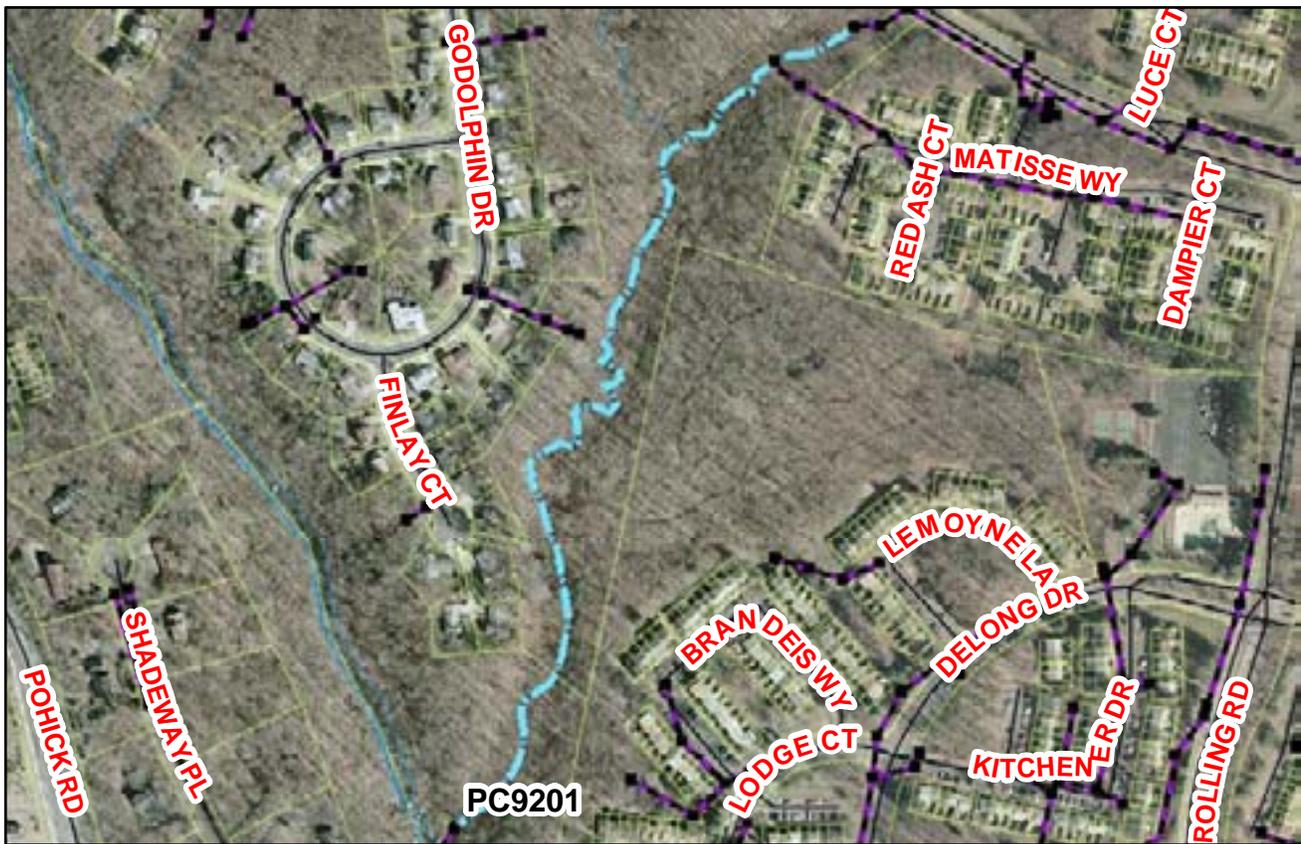
PC9201 Stream Restoration



Address: Behind 7756 Matisse Way, Springfield, Virginia
Location: Stream behind Matisse Way
Land Owner: Public/Local – FCPA
PIN: 0984 06 E, 0984 06 C
Control Type: Water quality control
Drainage Area:
Receiving Waters: Tributary of Pohick Creek



Description: This stream restoration is located west of Matisse Way and east of Godolphin Dr., and is located on Fairfax County Park Authority land. This project proposes repairing bank and bed erosion, restoring channel morphology, and reducing excessive channel meander. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream restoration will help eliminate erosion from the stream and will reduce the amount of instream sediment and the resulting pollutants. This will result in a deeper dry weather channel and better functioning stream shape. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

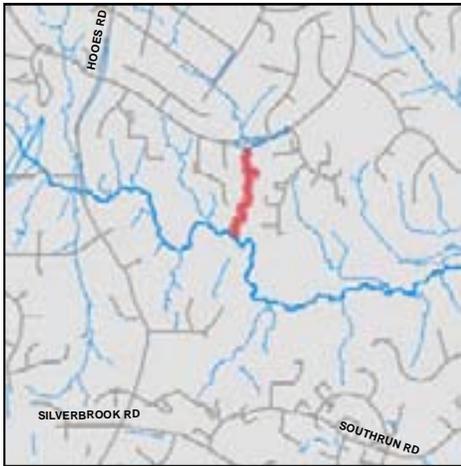
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
43.15	69.04	26.75

Project Design Considerations: The stream receives runoff from two closed storm systems at its upstream end. These outfalls are from dense townhouses with no stormwater treatment. Installing settling basins and boulder clusters would help roadway sediment settle out and reduce erosive velocities. Other measures include using streambank shaping, erosion control fabrics, and vegetation establishment.

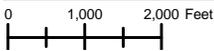
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2381	LF	\$200	\$476,200
Clear and Grub	2.74	AC	\$10,000	\$27,382
Plantings	2.74	AC	\$25,000	\$68,454
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$67,204
Ancillary Items	1	LS	5%	\$33,602
Base Construction Cost				\$772,841
Mobilization (5%)				\$38,642
Subtotal 1				\$811,483
Contingency (25%)				\$202,871
Subtotal 2				\$1,014,353
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$456,459
Total				\$1,470,812
Estimated Project Cost				\$1,480,000

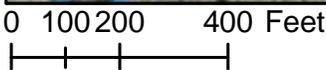
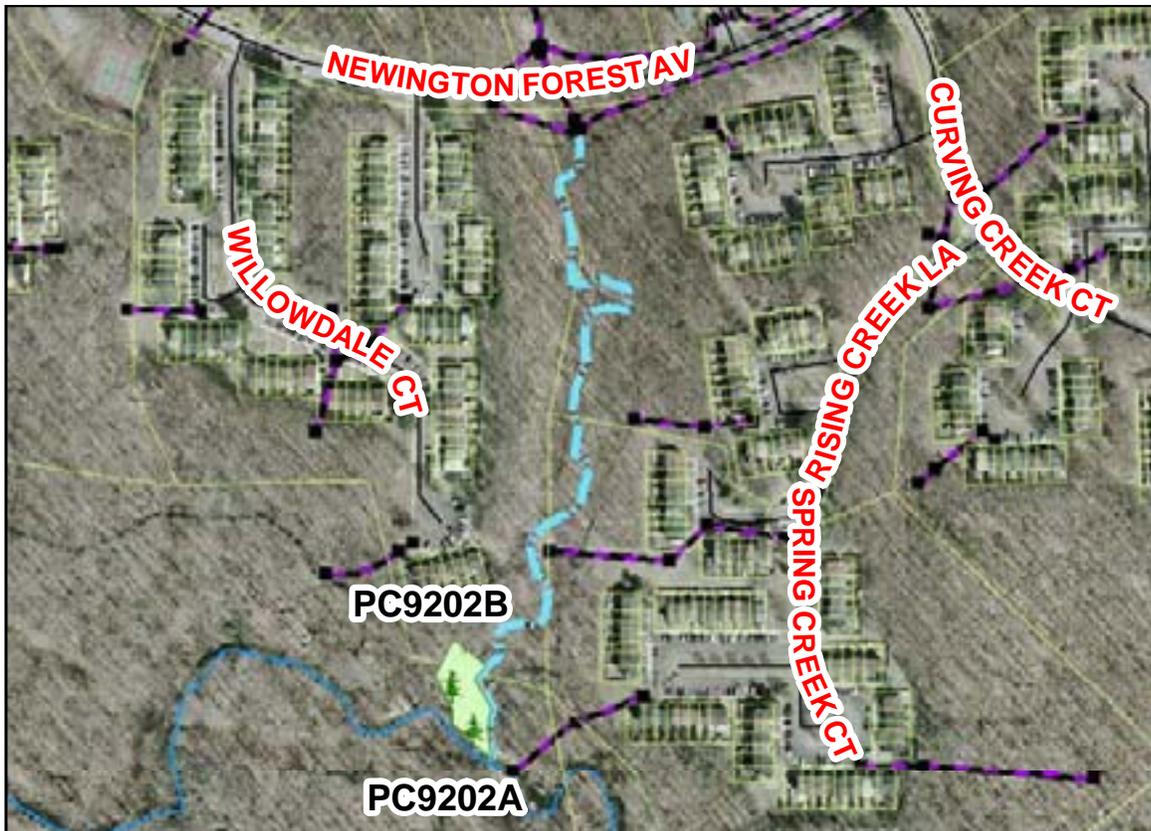
PC9202 Stream Restoration Suite



Address: Behind 8181 Willowdale Court, Fairfax, Virginia
Location: Near South Run Stream Valley Park
Land Owner: Public/Private - Fairfax County Park Authority, Newington Forest Community Association,
PIN: 0983 02 0001B, 0981 04 W, 0981 04 T, 0983 02 V
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run



Description: Subproject A is a stream restoration and will repair bank and bed erosion in the stream west of Spring Creek Court and southeast of Willowdale Court. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment. Subproject B is a buffer repair near the downstream end of the stream restoration. This buffer will provide additional treatment for runoff from the adjacent townhouses. The indicators are stream bank buffer deficiencies in headwater riparian habitat.



- +—+—+— Stream Restoration
- Buffer Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the stream channel and controlling unwanted meander. The buffer repair will re-establish the riparian protection area (RPA). Increasing vegetation will provide additional filtration of pollutants and will reduce runoff by intercepting water. This will increase surface storage, promote infiltration, and minimize stream erosion. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

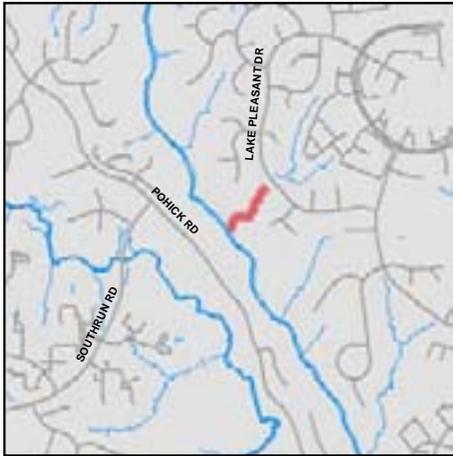
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
7.84	12.55	4.86

Project Design Considerations: Stream banks are steep and stream access is obstructed. Trees were hanging into the stream and there were many sediment deposits creating "islands." Areas were dammed. The degraded buffer area is surrounded by vegetation; therefore its deficiency is minimized. The degraded area could act as a staging point for the stream restoration. Records show no existing easements and stream appears to be in HOA open space. Project should be coordinated with outfall improvement project PC9204 (located just west of Rising Creek Court) to try and maximize the project benefits.

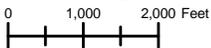
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	
Subproject A Stream restoration west of Spring Creek Ct.					
Construct New Channel	1510	LF	\$200	\$302,000	
Clear and Grub	1.7365	AC	\$10,000	\$17,365	
Plantings	1.7365	AC	\$25,000	\$43,413	
Additional Cost, First 500 LF	500	LF	\$200	\$100,000	
Subproject B Stream Buffer Behind Willowdale Ct.					
Plantings	0.27	AC	\$25,000	\$6,750	
Organic Compost Soil Amendment	870	CY	\$40	\$34,800	
Invasive Plant Eradication	1	LS	10%	\$4,155	
Common Items					
Ancillary Items	1	LS	5%	\$25,424	
Erosion and Sediment Control	1	LS	10%	\$50,848	
				Base Construction Cost	\$584,755
				Mobilization (5%)	\$29,238
				Subtotal 1	\$613,993
				Contingency (25%)	\$153,498
				Subtotal 2	\$767,491
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)					\$345,371
				Total	\$1,112,862
				Estimated Project Cost	\$1,120,000

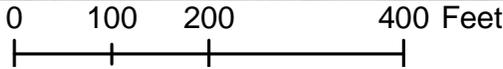
PC9203 Stream Restoration



Address: 8100 Lake Pleasant Dr. (Adj. to Kings Point Ct.), Springfield, Virginia
Location: Stream along Lake Pleasant Dr.
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0982 06 B2, 0982 06 A2
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: Stream is southwest of Lake Pleasant Drive and north of Kings Point Court. The stream conveys runoff from adjacent residential neighborhoods and flows southwest. This project proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization will help to reduce sediment loads to the stream channel and control unwanted meander. Stabilization will help in reducing stream erosion over time. Replanting will help reduce pollutant loads. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

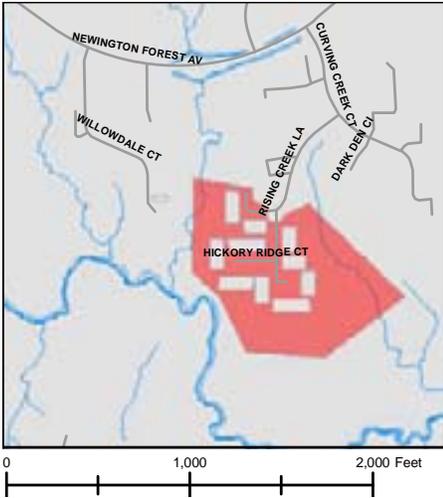
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
10.71	14.57	5.64

Project Design Considerations: While there is significant contributing impervious area, the buffer area appears well maintained. Efforts should be made to minimize the impact to this existing vegetation. A majority of the land is owned by Fairfax County Park Authority; however the farthest upstream portion is on property owned by Saratoga Community Association. No easements exist on site according to the County-provided GIS data.

Cost:

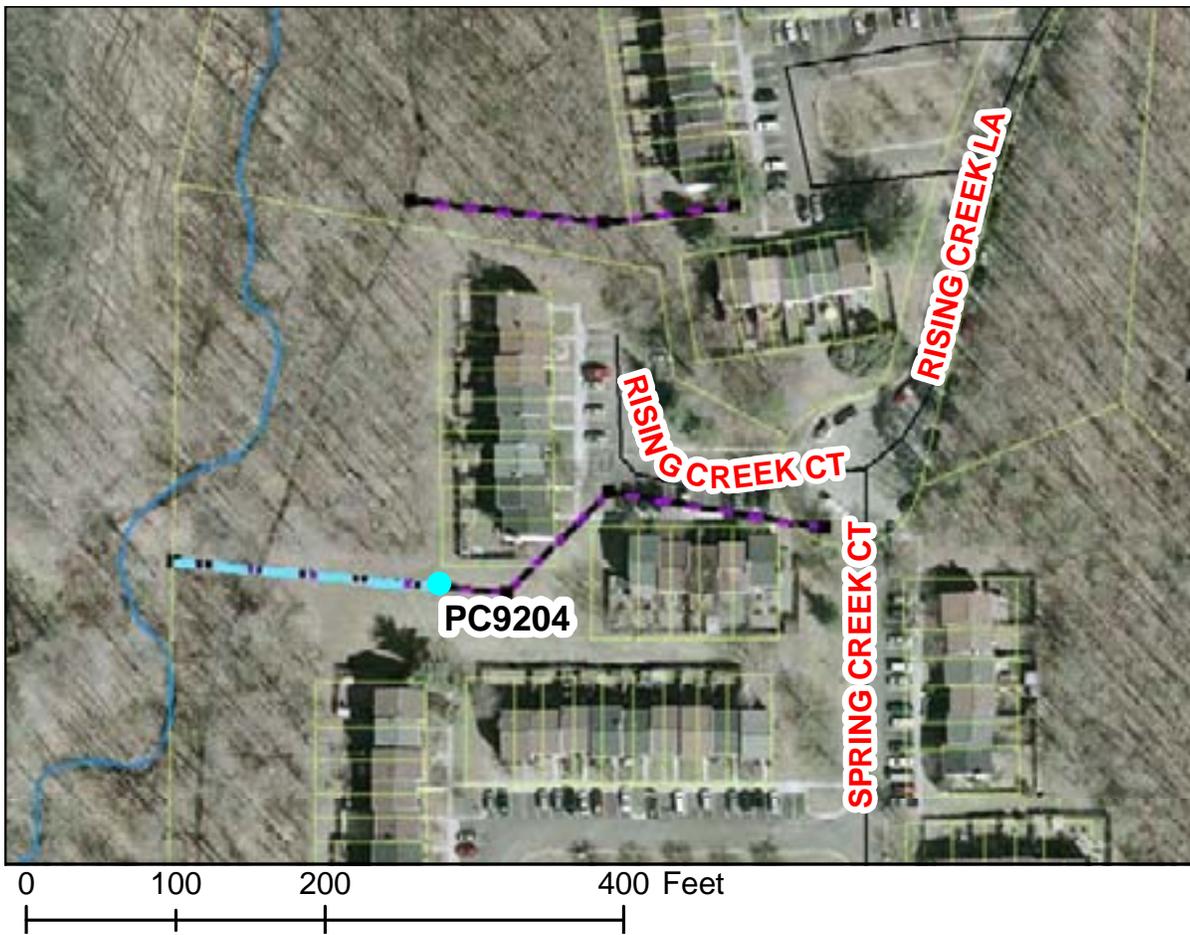
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	867	LF	\$200	\$173,400
Clear and Grub	1.00	AC	\$10,000	\$9,971
Plantings	1.00	AC	\$25,000	\$24,926
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$30,830
Ancillary Items	1	LS	5%	\$15,415
Base Construction Cost				\$354,541
Mobilization (5%)				\$17,727
Subtotal 1				\$372,268
Contingency (25%)				\$93,067
Subtotal 2				\$465,335
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$209,401
Total				\$674,736
Estimated Project Cost				\$680,000

PC9204 Stream Restoration



Address: Next to 8661 Rising Creek Court, Springfield, Virginia
Location: West of townhouses on Rising Creek Court
Land Owner: Private – Newington Forest Community Association
PIN: 0983 02 V
Control Type: Water quality control
Drainage Area: 0.74 acres
Receiving Waters: Tributary of South Run

Description: This project proposes daylighting a pipe from Rising Creek Court farther upstream with an energy dissipation device and construction of an open channel. The energy dissipation device consists of a series of step pools reinforced with either rocks or logs. The daylighting will help reduce the velocity of the water entering the stream. The primary problem indicator is poor channel morphology.



Project Benefits: Redirecting a closed system back to an aboveground channel will return the water to its natural state sooner. This will reduce runoff rates and volumes, which will help minimize stream erosion. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

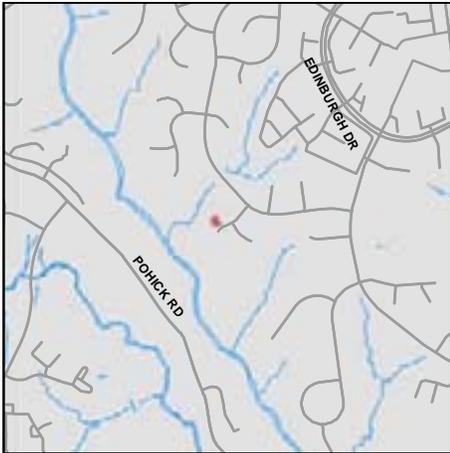
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.92	1.48	0.57

Project Design Considerations: The high density townhouses have a high percentage of impervious area. Much of the outfall run to be daylighted is not vegetated. The number of step pools required will be determined by the slope and length of pipe daylighted. Records do not show an existing stormwater easement, but the pipe and stream are located in the community open space. This project discharges into the stream that will be restored in project PC9202. Sequencing should be coordinated to combine efforts and minimize additional disturbances.

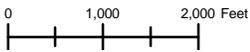
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	178	LF	\$200	\$35,600
Clear and Grub	0.20	AC	\$10,000	\$2,047
Plantings	0.20	AC	\$25,000	\$5,118
Additional Cost, First 500 LF	178	LF	\$200	\$35,600
Erosion and Sediment Control	1	LS	10%	\$7,836
Ancillary Items	1	LS	5%	\$3,918
Base Construction Cost				\$90,119
Mobilization (5%)				\$4,506
Subtotal 1				\$94,625
Contingency (25%)				\$23,656
Subtotal 2				\$118,281
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,227
Total				\$171,508
Estimated Project Cost				\$180,000

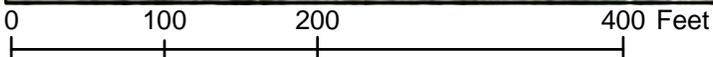
PC9205 Stream Restoration



Address: Behind 8106 Kings Point Court, Springfield, Virginia
Location: Stream near Kings Point Court
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0982 06 B2
Control Type: Water quality and quantity control
Drainage Area: 3.32 acres
Receiving Waters: Tributary of Pohick Creek



Description: Closed system collects runoff from Kings Point Court and one other cul-de-sac. The systems outfalls into a stream to the northwest. This project proposes daylighting the outfall pipe farther upstream. The primary problem indicator is poor channel morphology. This project returns the water to its natural state before entering the stream, allowing more time for the water to infiltrate and the flow velocities to decrease.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Daylighting this section of the storm pipe will allow for the creation of step pools, which provides a reduction of energy in the stormwater discharge and allows for settling of some of the stormwater sediment. This project will encourage infiltration. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

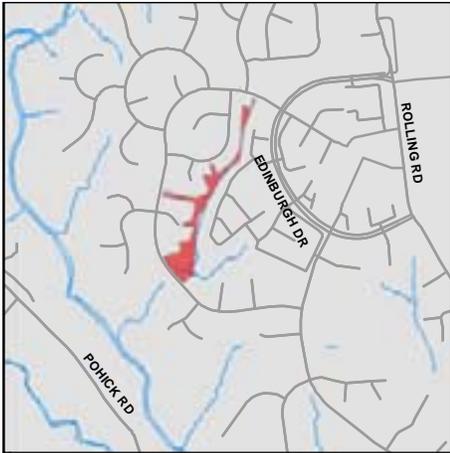
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
2.00	2.72	1.05

Project Design Considerations: This project discharges into a proposed stream restoration (PC9203). This daylighting project should be coordinated with the stream restoration project to help facilitate access to the pipe, since the pipe is located behind a single family home owned by Thomas Lambert. The slope of the land over the existing pipe is approximately 20%. A number of stepping pools will need to be used to reduce velocity of the discharge. The number of stepping pools will depend on the invert elevations of the storm pipe at the start and end of the daylighting.

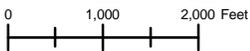
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	162	LF	\$200	\$32,400
Clear and Grub	0.19	AC	\$10,000	\$1,863
Plantings	0.19	AC	\$25,000	\$4,658
Additional Cost, First 500 LF	162	LF	\$200	\$32,400
Erosion and Sediment Control	1	LS	10%	\$7,132
Ancillary Items	1	LS	5%	\$3,566
Base Construction Cost				\$82,019
Mobilization (5%)				\$4,101
Subtotal 1				\$86,120
Contingency (25%)				\$21,530
Subtotal 2				\$107,649
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$48,442
Total				\$156,092
Estimated Project Cost				\$160,000

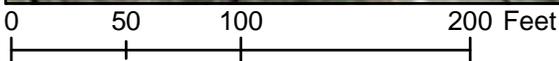
PC9206 Stream Restoration



Address: Next to 8021 Lake Pleasant Drive, Springfield, Virginia
Location: Stream near Lake Pleasant Dr.
Land Owner: Private – Saratoga Community Association
PIN: 0982 06 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: The project proposes restoring the stream just northeast of Lake Pleasant drive. The current stream has bank and bed erosion and poor channel morphology. The stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. This stream segment is steep and receives runoff from townhomes and a roadway outfall. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream restoration will reduce erosion and instream sediment. This will result in a deeper dry weather channel and better functioning stream shape. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

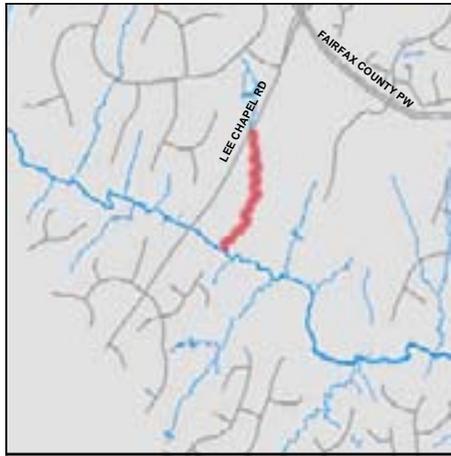
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.74	2.37	0.92

Project Design Considerations: This short stream segment receives flow from two branches upstream. To the north, the stream receives runoff from a row of townhouses. To the east, a cul-de-sac drains across a single family lot into the stream. The contours show the stream has a slope of approximately 7.1%. To address this steep slope, grade control measures and bank reinforcement will be required.

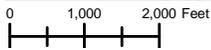
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	141	LF	\$200	\$28,200
Clear and Grub	0.16	AC	\$10,000	\$1,622
Plantings	0.16	AC	\$25,000	\$4,054
Additional Cost, First 500 LF	141	LF	\$200	\$28,200
Erosion and Sediment Control	1	LS	10%	\$6,208
Ancillary Items	1	LS	5%	\$3,104
Base Construction Cost				\$71,387
Mobilization (5%)				\$3,569
Subtotal 1				\$74,956
Contingency (25%)				\$18,739
Subtotal 2				\$93,695
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$42,163
Total				\$135,858
Estimated Project Cost				\$140,000

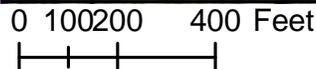
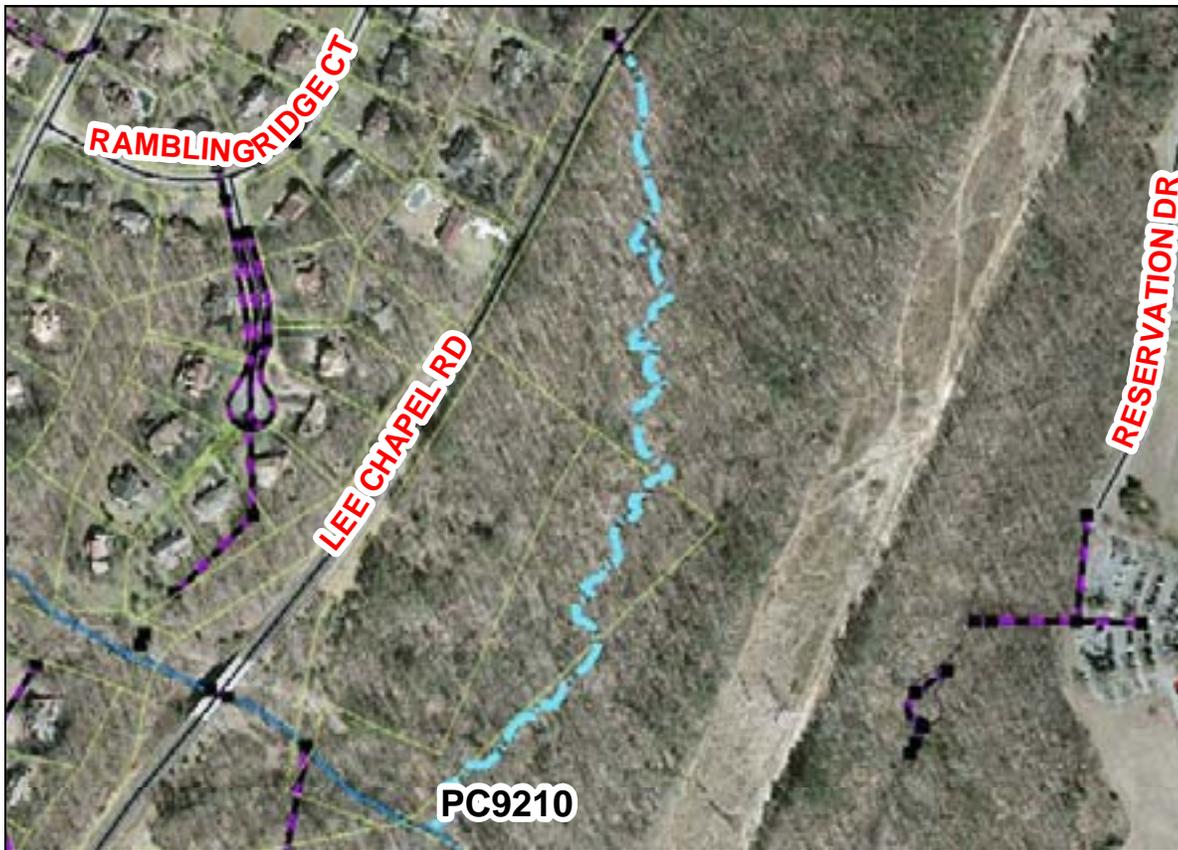
PC9210 Stream Restoration



Address: Behind 7801 Preakness Lane, Fairfax Station, Virginia
Location: Stream behind Oak Bridge Lane
Land Owner: Public – Fairfax County Park Authority
PIN: 0883 01 0004, 0971 01 0001A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run



Description: This project proposes repairing bank and bed erosion and restoring the channel morphology of the stream that runs parallel on the east side of Lee Chapel Road. The proposed restoration ends where the stream connects with a perpendicular stream to the south. The primary indicator is the poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stabilizing this stream will reduce erosion and instream sediment and the associated pollutants with this sediment. The stream stabilization will reduce sediment while maintaining the capacity and controlling unwanted meander of the stream. The project will not only repair existing erosion but prevent future erosion over time by implementing the measures above. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

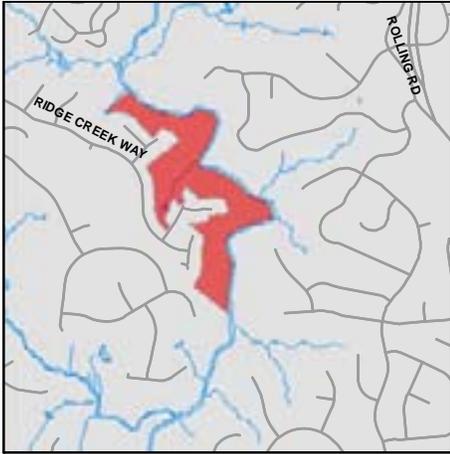
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
42.38	67.81	26.28

Project Design Considerations: This proposed project is in a densely wooded area behind homes and the South Run Recreation Center and is just west of a Dominion Virginia Power easement (open area east of stream on project map). The stream is located in Fairfax County Park Authority land. Efforts should be made to minimize impacts to existing mature vegetation. Measures implemented should address the poor channel morphology.

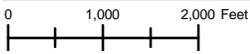
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2198	LF	\$200	\$439,600
Clear and Grub	2.53	AC	\$10,000	\$25,277
Plantings	2.53	AC	\$25,000	\$63,193
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$62,807
Ancillary Items	1	LS	5%	\$31,403
Base Construction Cost				\$722,280
Mobilization (5%)				\$36,114
Subtotal 1				\$758,394
Contingency (25%)				\$189,598
Subtotal 2				\$947,992
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$426,597
Total				\$1,374,589
Estimated Project Cost				\$1,380,000

PC9211 Stream Restoration Suite



Address: Near 8000 Middlewood Place, Springfield, Virginia
Location: Stream/Buffer near Middlewood Place
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0894 24 A
Control Type: Water quality control
Drainage Area: 0.71 acres
Receiving Waters: Tributary of Pohick Creek



Description: Subproject A proposes to daylight a pipe that collects runoff at the end of Middlewood Place and pipes it south into a stream. The primary indicator is channel morphology. The pipe leading into the stream is very steep, outfalling runoff at potentially erosive velocities. Subproject B proposes re-planting upland buffer area and providing reforestation. This project was proposed due to the existing stream buffer being deficient.



Project Benefits: Daylighting this storm pipe will help poor downstream channel morphology by redirecting a closed system back to an aboveground channel, returning the water to its natural state. This will reduce velocities entering the stream and minimize stream erosion. Buffer restoration will increase vegetation for filtration of pollutants and reduce runoff by intercepting the water and increasing surface storage and infiltration. Buffers can also help provide food and temperature control for organisms in and around the stream. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
4.82	7.71	2.99

Project Design Considerations: Projects proposed on are Fairfax County Park Authority property. Projects should be built in conjunction with one another. The number of step pools required will be determined by the slope and length of pipe daylighted. Efforts should be made to minimize impacts to mature vegetation. Buffer area to be replanted is steep (approximately 4%). Plants should be chosen for the buffer replanting that can survive at this slope. Diameter of pipe to be daylighted is 15".

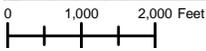
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Stream east of Middlewood Pl.				
Construct New Channel	234	LF	\$200	\$46,800
Clear and Grub	0.27	AC	\$10,000	\$2,691
Plantings	0.27	AC	\$25,000	\$6,728
Additional Cost, First 500 LF	234	LF	\$200	\$46,800
Subproject B Stream Buffers Adjacent to Middlewood Pl.				
Plantings	0.22	AC	\$25,000	\$5,500
Organic Compost Soil Amendment	650	CY	\$40	\$26,000
Invasive Plan Eradication	1	LS	10%	\$3,150
Common Items				
Erosion and Sediment Control	1	LS	10%	\$13,452
Ancillary Items	1	LS	5%	\$6,726
Base Construction Cost				\$157,846
Mobilization (5%)				\$7,892
Subtotal 1				\$165,739
Contingency (25%)				\$41,435
Subtotal 2				\$207,173
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$93,228
Total				\$300,401
Estimated Project Cost				\$310,000

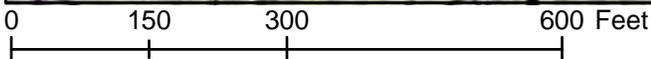
PC9214 Stream Restoration



Address: Behind 7309 Gist Court, Springfield, Virginia
Location: Stream near Gist Court
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0884 01 0009
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Middle Run



Description: The stream is between Arley Drive and Golden Ball Tavern Court. This project proposes repairing bank and bed erosion, thereby restoring channel morphology. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream, maintaining the capacity of the stream channel and controlling unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Reducing erosion from this stream will reduce instream sediment and its associated pollutants. Additionally, this stream receives untreated runoff from the surrounding residential areas and would benefit from improvements. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
8.95	12.17	4.71

Project Design Considerations: The stream is located on Fairfax County Park Authority property. The stream restoration starts and ends at roadway culverts. A storm pipe discharges directly to the middle of the stream restoration. The installation of settling basins and boulder clusters at the outfalls would help roadway sediment settle out of the stormwater runoff and lessen impacts from the increased velocity caused by inflows from the roadway. Stream stabilization techniques would include streambank shaping, rootwad revetments, and rock toe reinforcements. The stream appears to have adequate buffer from the townhouses.

Cost:

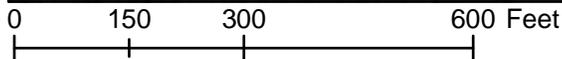
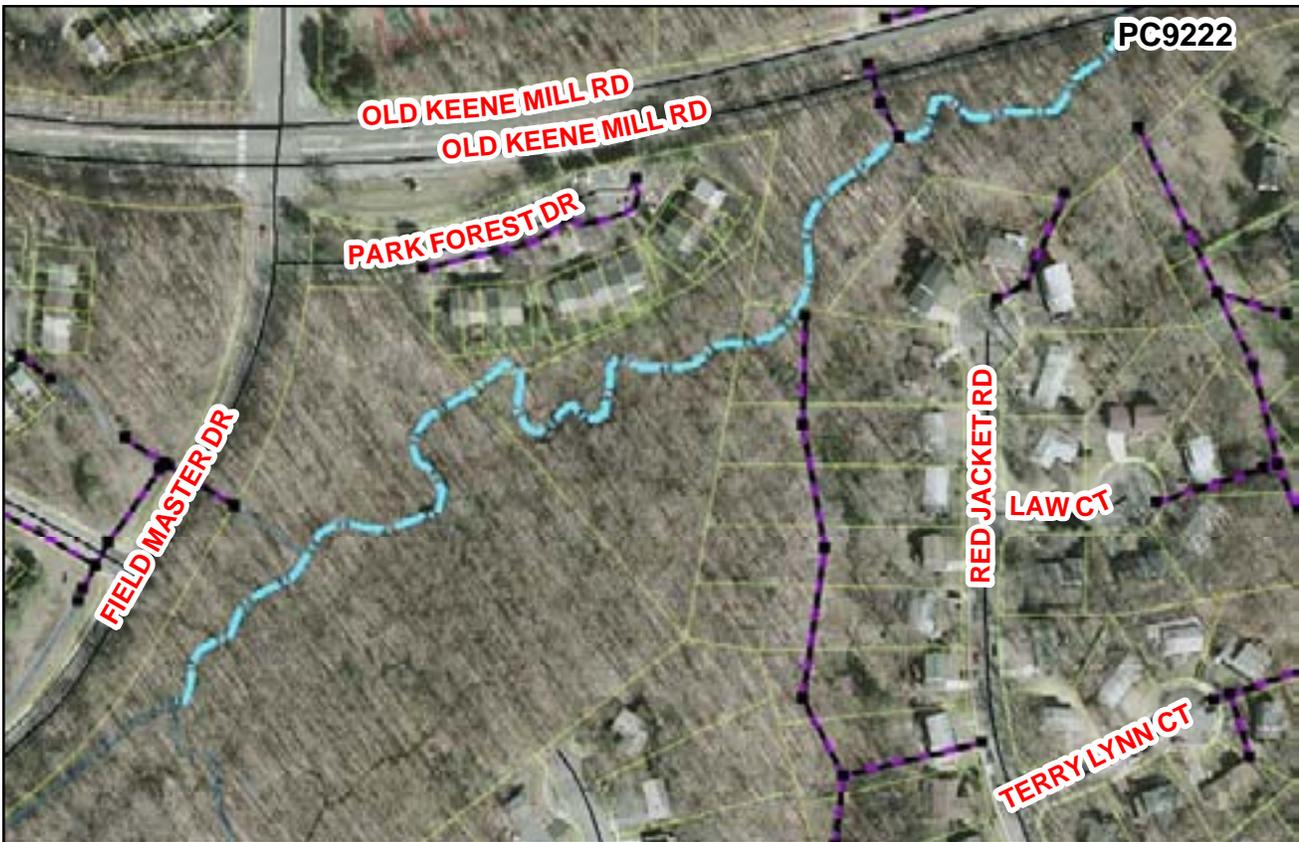
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	904	LF	\$200	\$180,800
Clear and Grub	1.04	AC	\$10,000	\$10,396
Plantings	1.04	AC	\$25,000	\$25,990
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$31,719
Ancillary Items	1	LS	5%	\$15,859
Base Construction Cost				\$364,764
Mobilization (5%)				\$18,238
Subtotal 1				\$383,002
Contingency (25%)				\$95,751
Subtotal 2				\$478,753
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$215,439
Total				\$694,191
Estimated Project Cost				\$700,000

PC9222 Stream Restoration



Address: Behind 8817 Bridle Wood Drive, Springfield, Virginia
Location: Stream near Old Keene Mill Road
Land Owner: Public/Private – Virginia Department of Transportation, Fairfax County Park Authority and Private Owner
PIN: 0882 09 A, 0882 22 A, 0882 22 B, 0882 04 0148
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: Stream flowing northeast towards Old Keene Mill Road. Stream collects runoff from several adjacent neighborhoods. This project proposes repairing bank and bed erosion to restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander. The primary indicators are poor channel morphology. The stream is located on Fairfax County Park Authority land.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Reducing bed and bank erosion from this stream will reduce instream sediment. Restoring this channel will help ensure the stream does not meander any closer to the townhouses. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

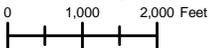
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
39.73	63.56	24.63

Project Design Considerations: This project starts just downstream of two roadway stormwater systems. This project is mostly located on Fairfax County Park Authority land, but a section of the stream crosses the northwest corner of Philip Hodges single family home lot. An easement will be needed for this section. Additionally, another section of the stream meanders near the back of a townhouse. This section should be stabilized and the buffer well vegetated. The stream receives discharge from a stormwater system that drains the houses to the west of Red Jacket Rd. This project will help reduce erosive velocities around this outfall.

Cost:

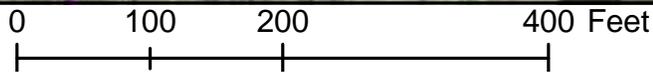
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1970	LF	\$200	\$394,000
Clear and Grub	2.27	AC	\$10,000	\$22,655
Plantings	2.27	AC	\$25,000	\$56,638
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$57,329
Ancillary Items	1	LS	5%	\$28,665
Base Construction Cost				\$659,286
Mobilization (5%)				\$32,964
Subtotal 1				\$692,251
Contingency (25%)				\$173,063
Subtotal 2				\$865,313
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$389,391
Total				\$1,254,704
Estimated Project Cost				\$1,260,000

PC9223 Stream Restoration



Address: In open space between Waterside Dr. & Burke Woods Dr., Burke, Virginia
Location: Stream between Waterside Dr. & Burke Woods Dr.
Land Owner: Private – Edgewater Land Bays 2&3 Homeowners Association
PIN: 0881 28 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of South Run

Description: The stream outfalls into a pond northeast of Lake Meadow Drive. The stream collects runoff by sheetflow from adjacent single family housing development. The primary indicator is poor channel morphology. The project proposes repairing bank and bed erosion, thereby restoring channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream stabilization will reduce sediment loads to the stream, maintaining capacity of the stream channel and controlling unwanted meander of the stream. Repairing the stream will help minimize erosion of the streambanks over time. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

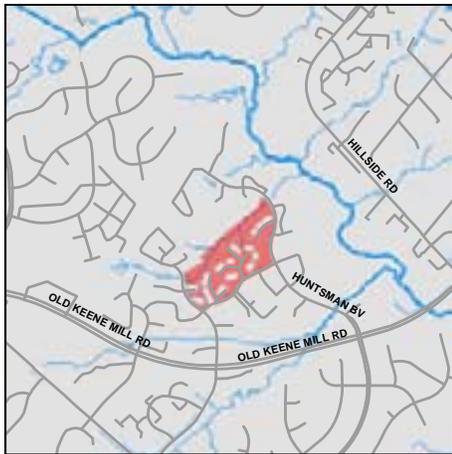
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
5.78	9.25	3.59

Project Design Considerations: There are two stormwater ponds downstream of this location. Property is owned by homeowners association. A stormwater drainage easement exists over this segment of stream and includes the surrounding buffers and downstream ponds. Efforts should be made to minimize impacts to existing vegetation. Streambed is lined in places with very large stones.

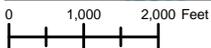
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	588	LF	\$200	\$117,600
Clear and Grub	0.68	AC	\$10,000	\$6,762
Plantings	0.68	AC	\$25,000	\$16,905
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$24,127
Ancillary Items	1	LS	5%	\$12,063
Base Construction Cost				\$277,457
Mobilization (5%)				\$13,873
Subtotal 1				\$291,330
Contingency (25%)				\$72,832
Subtotal 2				\$364,162
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$163,873
Total				\$528,035
Estimated Project Cost				\$530,000

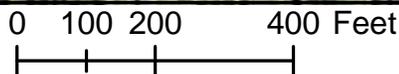
PC9225 Stream Restoration



Address: Next to 6297 Kerrydale Drive, Springfield, Virginia
Location: Stream near Kerrydale Drive
Land Owner: Private – Shannon Station Townhouse Association, Four Keene Mill Village Homeowners Association
PIN: 0784 21 M, 0882 1304 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: Stream is located southwest of Huntsman Boulevard. Receives runoff from adjacent neighborhoods. This project proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Stream conveys runoff from dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization will reduce sediment loads while maintaining the capacity of the stream and controlling unwanted meander. Measures will be put in place to repair existing erosion and prevent future erosion over time. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
76.02	121.62	47.13

Project Design Considerations: The majority of the site is on property owned by Shannon Townhouse Association. A small portion of the site is on property owned by Four Keene Mill Village Homeowners Association. Per County-provided GIS, there are no existing easements on site. Efforts should be taken to minimize impacts to mature vegetation.

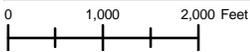
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1355	LF	\$200	\$271,000
Clear and Grub	1.56	AC	\$10,000	\$15,583
Plantings	1.56	AC	\$25,000	\$38,956
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$42,554
Ancillary Items	1	LS	5%	\$21,277
Base Construction Cost				\$489,370
Mobilization (5%)				\$24,468
Subtotal 1				\$513,838
Contingency (25%)				\$128,460
Subtotal 2				\$642,298
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$289,034
Total				\$931,331
Estimated Project Cost				\$940,000

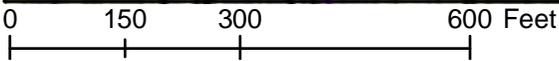
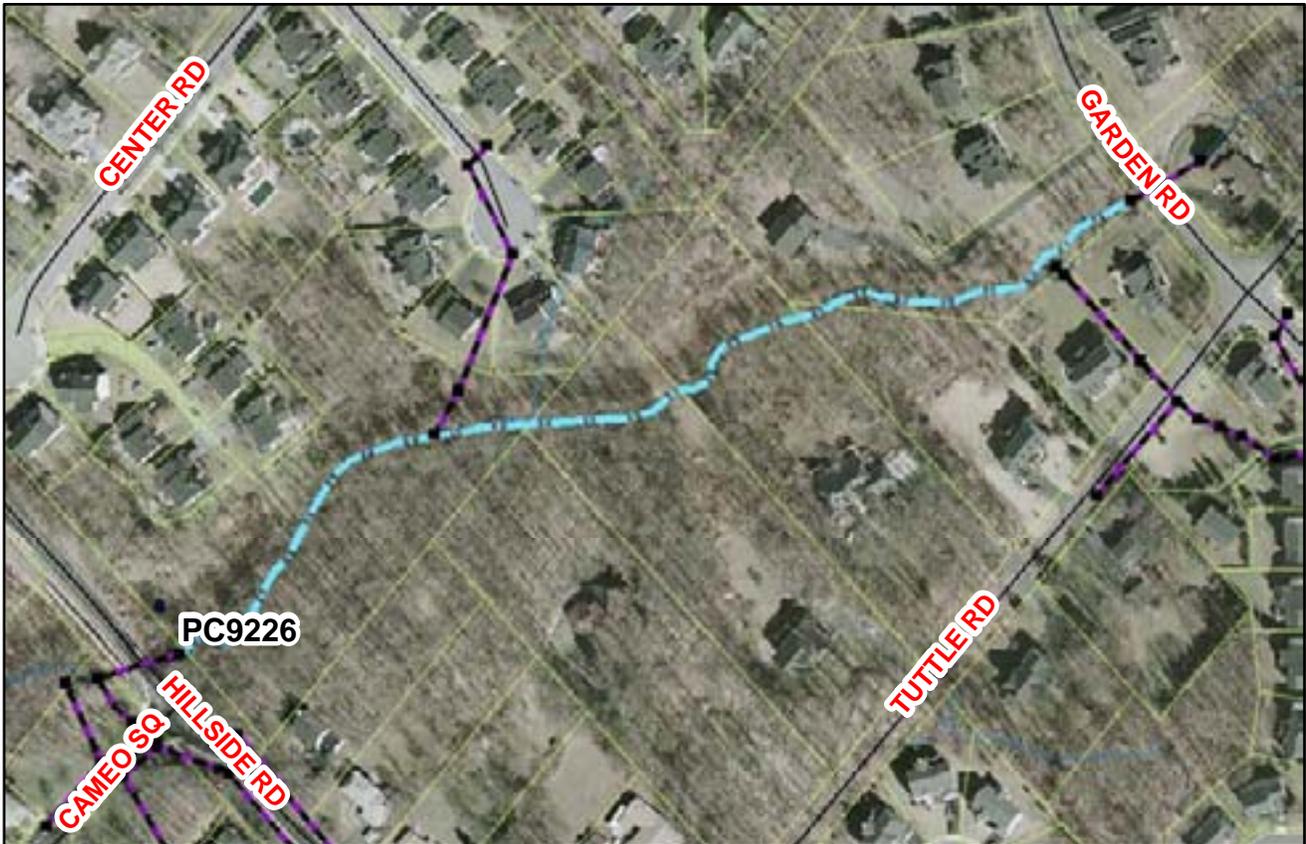
PC9226 Stream Restoration



Address: Behind 6321 Hillside Road, Springfield, Virginia
Location: Stream near Hillside Road
Land Owner: Public/ Private – Virginia Department of Transportation, Red Fox Estate Homeowners Association, Private Owners
PIN: 0793 36 A, 0793 04 0017, 0793 04 0016, 0793 04 0015A, 0793 07 0020A
Control Type: Water quality control
Drainage Area: NA
Receiving Waters: Tributary of Pohick Creek



Description: The stream is located northeast of Hillside Road. The stream receives stormwater runoff as sheet flow from adjacent neighborhoods and three closed systems from the Red Fox Estates neighborhood. Stream restoration proposes repairing bank and bed erosion to restore channel morphology. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads while maintaining capacity of the stream and controlling unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stabilizing this stream will reduce erosion and instream sediment. The restoration will also improve the stream habitat. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
22.23	35.56	13.78

Project Design Considerations: Measures to stabilize this stream should include improving the three stormwater outfalls. This stream section is located on the Red Fox Estate HOA open space and the private property of four single family house lots. Construction easements will need to be secured for the private properties. Possible stream stabilization improvements include: grade control measures, streambank shaping, boulder revetments, erosion control fabric, and vegetation establishment.

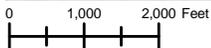
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1490	LF	\$200	\$298,000
Clear and Grub	1.71	AC	\$10,000	\$17,135
Plantings	1.71	AC	\$25,000	\$42,838
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$45,797
Ancillary Items	1	LS	5%	\$22,899
Base Construction Cost				\$526,668
Mobilization (5%)				\$26,333
Subtotal 1				\$553,002
Contingency (25%)				\$138,250
Subtotal 2				\$691,252
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$311,064
Total				\$1,002,316
Estimated Project Cost				\$1,010,000

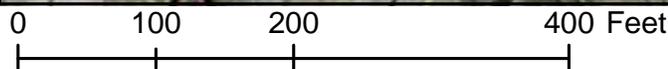
PC9227 Stream Restoration



Address: Behind 9500 Orion Court, Burke, Virginia
Location: Daylight stream near Orion Court
Land Owner: Public/Local – Fairfax County Public School
PIN: 0784 13 A
Control Type: Water quality and quantity control
Drainage Area: 9.12 acres
Receiving Waters: Tributary of Pohick Creek



Description: A closed system collects runoff from Capella Ave. and a large surrounding area, including residential development. A pipe outfalls into the stream east of Capella Drive. This stream is in wooded area behind White Oaks Elementary School. Due to poor channel morphology, this project proposes daylighting the outfall farther upstream to restore the water to its natural state before reaching the stream. Energy dissipation devices, which will consist of a series of reinforced step pools will be put in place to reduce velocity of water entering the stream.



Project Benefits: Daylighting this storm pipe will help poor downstream channel morphology by redirecting a closed system back to an aboveground channel, returning the water to its natural state. This will reduce velocities entering stream and minimize stream erosion. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.66	2.66	1.03

Project Design Considerations: This project is on Fairfax County Public School property. The number of step pools required will be determined by the slope and length of pipe daylighted. Efforts should be made to minimize impacts to mature vegetation. Daylighting will occur in open space behind several residential houses. There is an access point on Orion Court. Pipe currently outfalls at the upstream most point of the stream. Project will extend the length of the stream. Stream section to be daylighted is close to residential lot, and therefore extra precautions may need to be taken. A construction easement may need to be obtained or slope stabilization may need to be done near the residential lot.

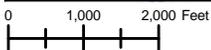
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	86	LF	\$200	\$17,200
Clear and Grub	0.10	AC	\$10,000	\$989
Plantings	0.10	AC	\$25,000	\$2,473
Additional Cost, First 500 LF	86	LF	\$200	\$17,200
Erosion and Sediment Control	1	LS	10%	\$3,786
Ancillary Items	1	LS	5%	\$1,893
Base Construction Cost				\$43,541
Mobilization (5%)				\$2,177
Subtotal 1				\$45,718
Contingency (25%)				\$11,429
Subtotal 2				\$57,147
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$25,716
Total				\$82,863
Estimated Project Cost				\$90,000

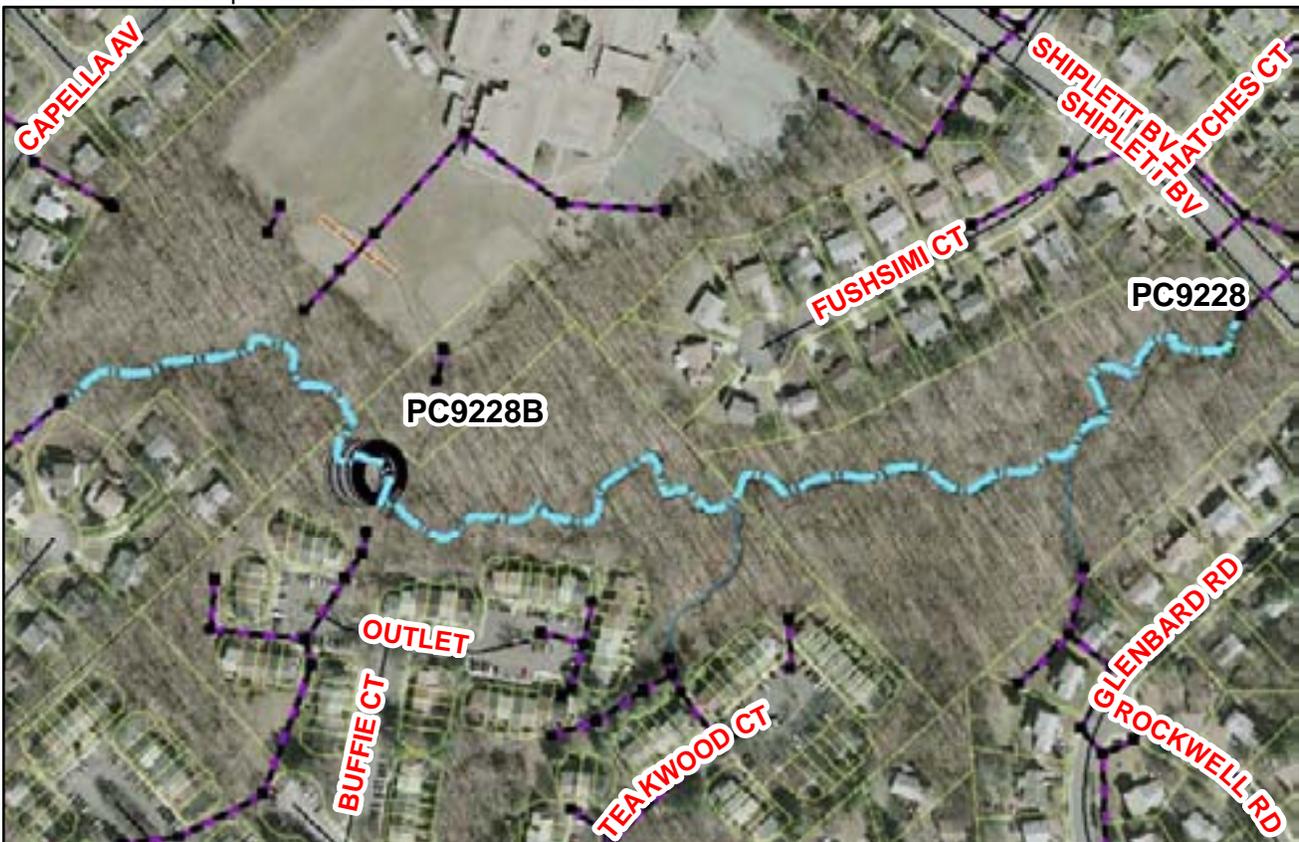
PC9228 Stream Restoration Suite



Address: Behind 6300 Glenbard Road, Burke, Virginia
Location: Stream near Glenbard Road
Land Owner: Public/Local/Private – Fairfax County Park Authority, School Board of Fairfax County, Old Mill Community Council
PIN: 0784 24 B, 0784 13 A, 0783 06 D1
Control Type: Water quality control
Drainage Area:
Receiving Waters: Tributary of Pohick Creek



Description: Subproject A is a stream restoration of the stream west of Shiplett Boulevard and northwest of Glenbard Road, and is located on Fairfax County Park Authority land. This project proposes repairing bank and bed erosion, restoring the channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander. Subproject B is an obstruction removal in the stream north of Buffie Court and west of Orion Court. The obstruction was verified during a field visit. This project proposes to remove the obstructions blocking the stream channel to restore natural conditions. Removal of obstructions will help restore the function of the stream.



Project Benefits: Restoring this stream will reduce erosion and instream sediment. The obstruction removal would help improve the function of the stream and with coordination of the community could improve local stewardship of the stream. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

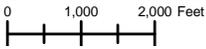
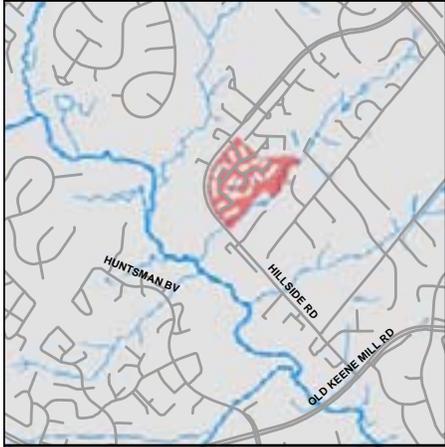
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
156.06	249.69	96.75

Project Design Considerations: Streambed is excessively wide and dry. Measures should be implemented to help restore baseflow. These measures could include rock vane deflectors, which would help concentrate flow to a stable deeper baseflow channel. During larger flows caused by storm events the water would utilize the entire streambank width. Other measures to improve water quality should include improving outfall connections to the stream for the six outfalls discharging runoff from the townhomes and single family homes. A positive condition for the success of this restoration is that there is a good existing stream buffer.

Cost:

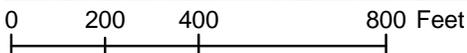
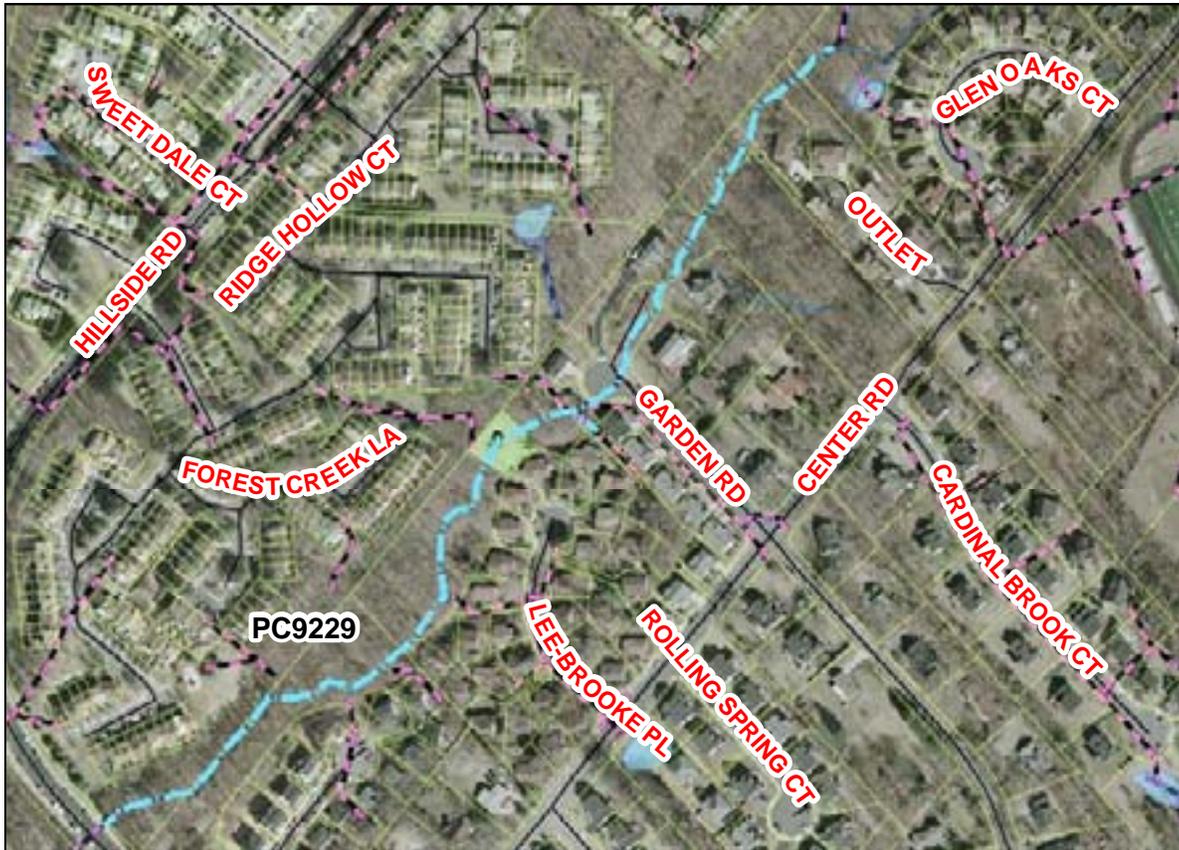
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Stream South of Fushsimi Ct.				
Construct New Channel	2515	LF	\$200	\$503,000
Clear and Grub	2.89	AC	\$10,000	\$28,923
Plantings	2.89	LS	\$25,000	\$72,306
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$70,423
Ancillary Items	1	LS	5%	\$35,211
Subproject B Obstruction Removal Near Lakehaven La.				
Obstruction Removal	1	LS	\$5,250	\$5,250
Base Construction Cost				\$815,113
Mobilization (5%)				\$40,756
Subtotal 1				\$855,869
Contingency (25%)				\$213,967
Subtotal 2				\$1,069,836
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$481,426
Total				\$1,551,262
Estimated Project Cost				\$1,560,000

PC9229 Stream Restoration



Address: Behind 8901 Winding Hollow Way, Springfield, Virginia
Location: Stream near Winding Hollow Way
Land Owner: Private – Lee Brooke Homeowners Association, Timbers Homeowners Association
PIN: 0793 22 A, 0784 17 J
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This Suite of project proposes restoration projects along the stream northeast of Hillside Road. Subproject A will be along the main stream, subproject B is a riparian buffer restoration, and subproject C is a daylighting of a storm pipe that outfalls to this stream. The primary indicator is poor channel morphology. The Stream receives runoff from sheet flow and closed systems from adjacent residential neighborhoods. These projects will reduce sediment loads to the stream while maintaining capacity and controlling unwanted meander.



Project Benefits: Daylighting the storm pipe to the stream will increase infiltration and will decrease erosion near the outfall. The stream restoration will improve the other stormwater outfalls along the stream to help reduce the roadway fines from the untreated stormwater runoff. The buffer restoration will decrease the amount of pollutants following the stream. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
36.70	58.72	22.75

Project Design Considerations: The stream is behind single family homes and townhouses. The upstream section is located on Lee Brook HOA open space and the downstream section is located on Timber HOA open space. The longitudinal slope of the stream is approximately 1.6%. Grade control measures should be investigated to prevent stream incision. A culvert draining Garden Road is Upstream. The stream receives untreated runoff from nine stormwater outfalls. Stream stabilization around these outfalls will help reduce erosion. Trees are leaning into the stream due to erosion. A stream restoration project (PC9231) is also proposed upstream of Garden Road and a buffer restoration project (PC9812) is proposed northwest of the Lee Brooke PL cul-de-sac. Coordination of these projects should be investigated for cost savings.

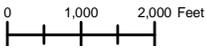
Cost:

SUBPROJECT A ITEMS	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2533	LF	\$200	\$506,600
Clear and Grub	2.91295	AC	\$10,000	\$29,130
Plantings	2.91295	AC	\$25,000	\$72,824
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
SUBPROJECT B ITEMS	QUANTITY	UNITS	UNIT COST	TOTAL
Plantings	0.26	AC	\$25,000	\$6,500
Organic Compost Soil Amendment	725	CY	\$40	\$29,000
Invasive Plant Eradication	1	LS	10%	\$3,550
SUBPROJECT C ITEMS	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	72	LF	\$200	\$14,400
Clear and Grub	0.0828	AC	\$10,000	\$828
Plantings	0.0828	AC	\$25,000	\$2,070
COMMON ITEMS	QUANTITY	UNITS	UNIT COST	TOTAL
Erosion and Sediment Control	1	LS	10%	\$76,490
Ancillary Items	1	LS	5%	\$38,245
Base Construction Cost				\$879,636
Mobilization (5%)				\$43,982
Subtotal 1				\$923,618
Contingency (25%)				\$230,905
Subtotal 2				\$1,154,523
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$519,535
Total				\$1,674,058
Estimated Project Cost				\$1,680,000

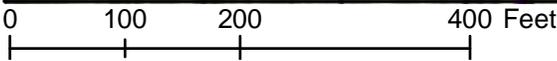
PC9230 Stream Restoration



Address: Behind 9820 Rand Drive, Burke, Virginia
Location: Stream near Rand Drive
Land Owner: Private - Burke Centre Conservancy
PIN: 0783 11 S, 0783 10 Q, 0783 10 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: The stream east of Wilmington Drive and north of Rand Drive has poor channel morphology. This project proposes repairing bank and bed erosion to restore channel morphology. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment. The stream stabilization will reduce sediment loads while maintaining the capacity of the stream and controlling unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Restoring this stream will reduce erosion and instream sediment. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

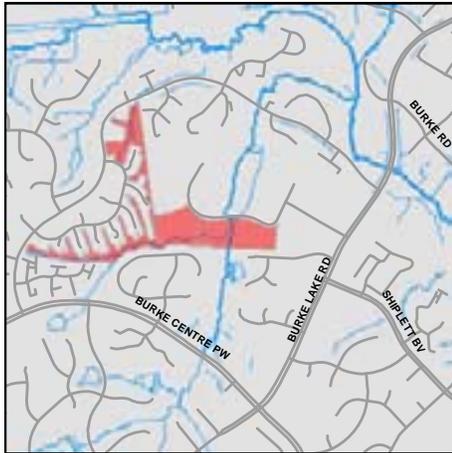
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
11.64	15.84	6.14

Project Design Considerations: Fully developed single family residential area drains to this stream with no stormwater management. The stream has a longitudinal slope of approximately 2.5%. Upstream end of restoration is Wilmington Drive culvert. Downstream of restoration is the confluence of another stream. Significant impervious area drains to the stream and there is minimal buffer between the residential area and the stream. Stream receives sheet flow from back of houses and runoff from two storm pipe outfalls. Installing settling basins at these outfalls will reduce erosive flow velocities and reduce roadway sediment.

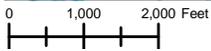
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	737	LF	\$200	\$147,400
Clear and Grub	0.85	AC	\$10,000	\$8,476
Plantings	0.85	LS	\$25,000	\$21,189
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$27,706
Ancillary Items	1	LS	5%	\$13,853
Base Construction Cost				\$318,624
Mobilization (5%)				\$15,931
Subtotal 1				\$334,555
Contingency (25%)				\$83,639
Subtotal 2				\$418,194
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$188,187
Total				\$606,381
Estimated Project Cost				\$610,000

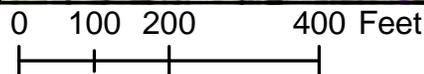
PC9234 Stream Restoration



Address: Behind 9840 Natick Rd., Burke, Virginia
Location: Stream near Natick Rd.
Land Owner: Private – Burke Centre Conservancy, Private Homeowners
PIN: 0781 14 L, 0783 02 0009A, 0783 02 0010, 0783 02 0011
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes repairing bank and bed erosion, restoring channel morphology to a stream north of Natick Road. Stream receives runoff from a residential neighborhood by both direct runoff and from a closed system. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment. The primary indicator is poor stream stabilization.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This project will reduce sediment loads while maintaining the capacity of the stream and controlling unwanted meander. Repairing the stream erosion will also help minimize erosion of the streambanks over time. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
51.17	81.87	31.72

Project Design Considerations: About half of the stream length to be restored is on property owned by the Burke Centre Conservancy, however the rest of the stream is on lots with private homeowners. According to County-provided GIS, no easements exist on these properties. Efforts should be made to insure that disturbance to existing mature vegetation is minimized.

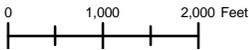
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1981	LF	\$200	\$396,200
Clear and Grub	2.28	AC	\$10,000	\$22,782
Plantings	2.28	AC	\$25,000	\$56,954
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$57,594
Ancillary Items	1	LS	5%	\$28,797
Base Construction Cost				\$662,326
Mobilization (5%)				\$33,116
Subtotal 1				\$695,442
Contingency (25%)				\$173,860
Subtotal 2				\$869,302
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$391,186
Total				\$1,260,488
Estimated Project Cost				\$1,270,000

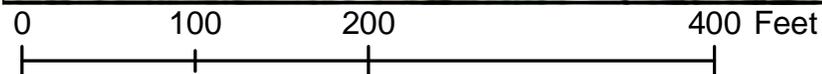
PC9235 Stream Restoration



Address: Behind 5913 Veranda Drive, Springfield, Virginia
Location: Stream near Veranda Drive
Land Owner: Private – The Crossings Homeowners Association
PIN: 0793 16 A
Control Type: Water quality and quantity control
Drainage Area: 3.12 acres
Receiving Waters: Tributary of Pohick Creek



Description: Two inlets collect runoff from Veranda Drive and pipe it to an adjacent stream to the east. Due to poor channel morphology, this project has been proposed to daylight the pipe farther upstream by creating an open channel and using an energy dissipation device. This device consists of a series of step pools reinforced with either rocks or logs. The daylighting will help reduce the velocity of the water entering the stream.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Daylighting this storm pipe will help poor downstream channel morphology by redirecting a closed system back to its natural state prior to entering the stream area, thereby reducing runoff rates and minimizing stream erosion. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
2.31	3.70	1.43

Project Design Considerations: The property is owned by The Crossings Homeowners Association. There are no on-site easements according to the County-provided GIS. Efforts should be made to minimize impacts to existing mature vegetation.

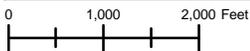
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	134	LF	\$200	\$26,800
Clear and Grub	0.15	AC	\$10,000	\$1,541
Plantings	0.15	AC	\$25,000	\$3,853
Additional Cost, First 500 LF	134	LF	\$200	\$26,800
Erosion and Sediment Control	1	LS	10%	\$5,899
Ancillary Items	1	LS	5%	\$2,950
Base Construction Cost				\$67,843
Mobilization (5%)				\$3,392
Subtotal 1				\$71,235
Contingency (25%)				\$17,809
Subtotal 2				\$89,043
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$40,069
Total				\$129,113
Estimated Project Cost				\$130,000

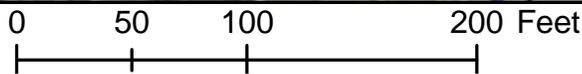
PC9236 Stream Restoration



Address: Across the street from 5901 Freds Oak Road, Burke, Virginia
Location: Stream near Freds Oak Road
Land Owner: Private- Burke Centre Conservancy
PIN: 0773 05 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The stream is located behind homes in a single family residential neighborhood. It conveys stormwater from adjacent homes and streets including Oak Leather Drive, Fred's Oak Road, Fred's Oak Court and Vernon's Oak Court. The stream continues downstream of the culvert under Oak Leather Drive. This project proposes repairing bank erosion and restoring channel morphology upstream of Oak Leather Drive.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream restoration will reduce the erosion and instream sediment load. Additionally this project will improve the two stormwater discharges outfalling to the stream, which will reduce coarse sediment from the roadway and reduce erosive velocities. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
2.28	3.65	1.42

Project Design Considerations: This section of the stream has two outfalls discharging untreated stormwater runoff from the neighborhood roads. The outfalls will be improved through stream buffer plantings, creation of sediment ponding areas, and stream stabilization. During a field visit in the spring the stream appeared to be dry (see photos). There is evidence of erosion along the banks. Due to the location in a residential neighborhood, the buffer area is greatly reduced.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	187	LF	\$200	\$37,400
Clear and Grub	0.22	AC	\$10,000	\$2,151
Plantings	0.22	AC	\$25,000	\$5,376
Additional Cost, First 500 LF	187	LF	\$200	\$37,400
Erosion and Sediment Control	1	LS	10%	\$8,233
Ancillary Items	1	LS	5%	\$4,116
Base Construction Cost				\$94,676
Mobilization (5%)				\$4,734
Subtotal 1				\$99,410
Contingency (25%)				\$24,852
Subtotal 2				\$124,262
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$55,918
Total				\$180,180
Estimated Project Cost				\$190,000

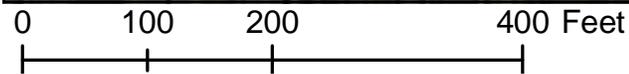
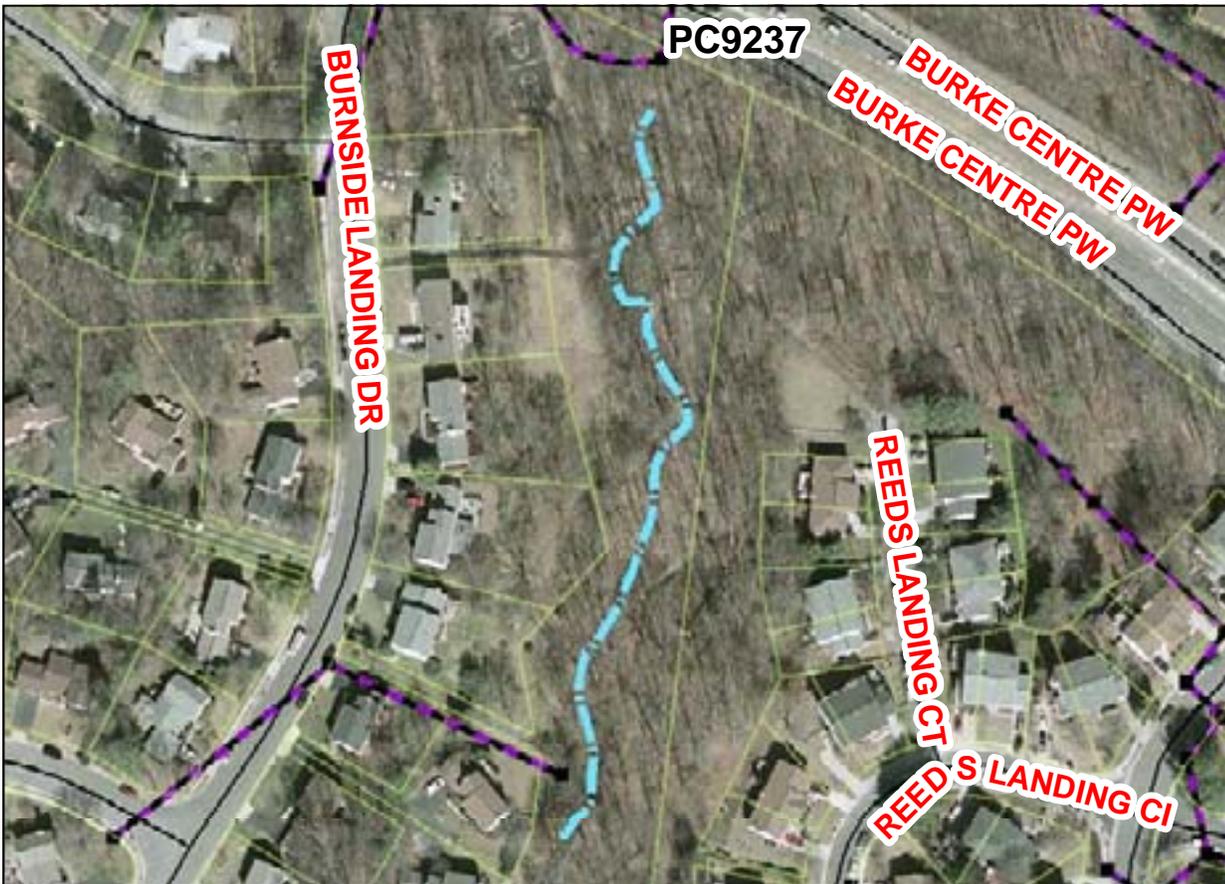
PC9237 Stream Restoration



Address: Behind 10550 Reeds Landing Ct., Burke, Virginia
Location: Stream near Reeds Landing Ct.
Land Owner: Private – Burke Centre Conservancy
PIN: 0774 07 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The stream runs between Reeds Landing Court and Burnside Landing Drive. Pipes discharge directly into the stream from adjacent subdivisions. This project consists of repairing bank and bed erosion and restoring channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization will reduce sediment loads to the stream, maintain the capacity of the stream channel and control unwanted meander. The proposed measures will repair existing erosion and prevent future erosion over time. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

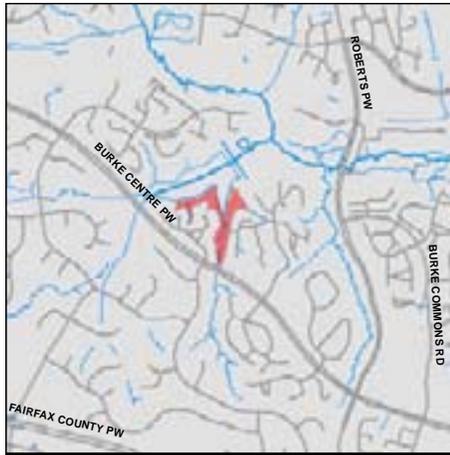
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
10.26	16.42	6.36

Project Design Considerations: Stream is on property owned by Burke Centre Conservancy. There are no easements on the property, according to County-provided GIS. Residential area is piped to stream at one location without any pre-treatment. Efforts should be taken to minimize impacts to mature vegetation and to maintain the buffer.

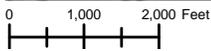
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	673	LF	\$200	\$134,600
Clear and Grub	0.77	AC	\$10,000	\$7,740
Plantings	0.77	AC	\$25,000	\$19,349
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$26,169
Ancillary Items	1	LS	5%	\$13,084
Base Construction Cost				\$300,941
Mobilization (5%)				\$15,047
Subtotal 1				\$315,989
Contingency (25%)				\$78,997
Subtotal 2				\$394,986
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$177,744
Total				\$572,729
Estimated Project Cost				\$580,000

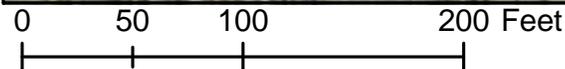
PC9239 Stream Restoration



Address: Next to 5914 Cove Landing Road, Burke, Virginia
Location: Daylight Stream near Landing Rd
Land Owner: Private - Burke Centre Conservancy
PIN: 0772 01 0044C
Control Type: Water quality and quantity control
Drainage Area: 2.05 acres
Receiving Waters: Tributary of Sideburn Branch



Description: Runoff from a residential neighborhood is collected in a closed system of pipes. Currently, a concrete channel between residential buildings conveys stormwater to a closed system that outfalls directly into the stream. This project proposes to remove a portion of the concrete channel and closed system to create a more natural channel to convey stormwater to the stream. Due to the slope, a series of check dams or step pools may be necessary to keep velocities low.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This project will retrofit a concrete channel and closed system into a natural channel, returning the water to its natural state and helping reduce runoff rates, which will help minimize stream erosion. Runoff will also travel through the buffer and reduce pollutant loads. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.39	2.22	0.86

Project Design Considerations: Stormwater runoff flows down a concrete channel and eventually into a closed system. This project proposes that starting at the property line, the channel be retrofitted into a natural channel. A portion of the existing channel is in open space and the rest is in a wooded area. Efforts should be made to minimize impacts to existing mature vegetation. Step pools and check dams will be necessary to reduce velocities in the naturalized stream. Maintaining the existing walking path will be necessary. See project map and photos. The stream project is located on property owned by Burke Centre Conservancy. County records show no onsite easements.

Cost:

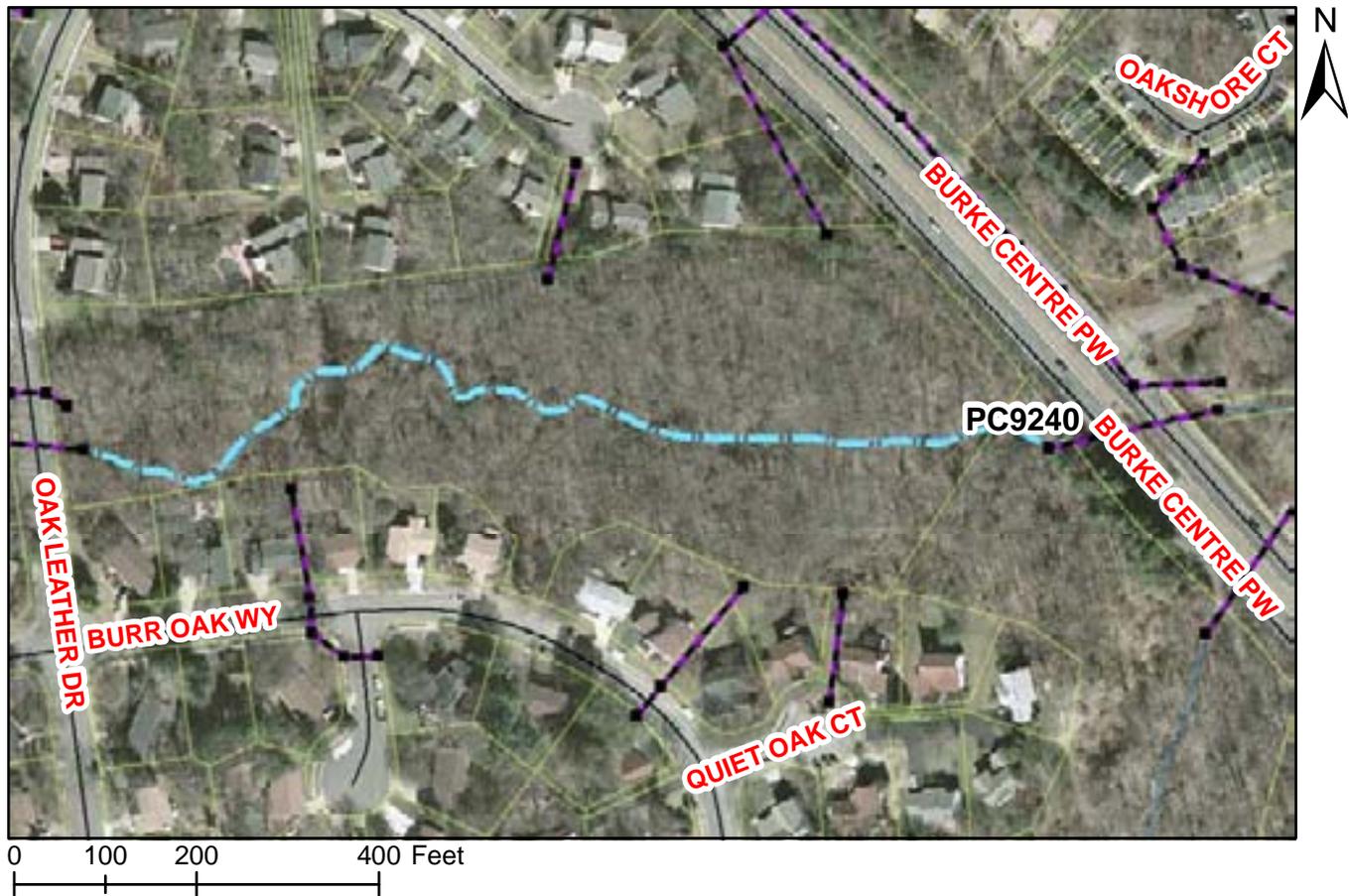
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	91	LF	\$200	\$18,200
Clear and Grub	0.10	AC	\$10,000	\$1,047
Plantings	0.10	AC	\$25,000	\$2,616
Additional Cost, First 500 LF	91	LF	\$200	\$18,200
Erosion and Sediment Control	1	LS	10%	\$4,006
Ancillary Items	1	LS	5%	\$2,003
Base Construction Cost				\$46,072
Mobilization (5%)				\$2,304
Subtotal 1				\$48,376
Contingency (25%)				\$12,094
Subtotal 2				\$60,470
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$27,211
Total				\$87,681
Estimated Project Cost				\$90,000

PC9240 Stream Restoration



Address: Along Burke Centre Pkwy, Near 5901 Waters Edge Landing Lane, Burke, Virginia
Location: Stream near Water Edge Landing Lane
Land Owner: Private - Burke Centre Conservancy
PIN: 0771 07 B, 0771 09 F
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch

Description: This project is located upstream of the Burke Centre Parkway culvert. The stream conveys stormwater from single family homes. The primary indicator is poor channel morphology. The purpose of the project is to restore channel morphology and to add an energy dissipation device. This will reduce sediment loads to the stream, while maintaining capacity of the stream channel and controlling unwanted meandering of the stream.



 Stream Restoration
 Storm Network
 Property Line
 Streams

Project Benefits: Restoring this stream will reduce instream sediment and its associated pollutants. Additionally, installing an energy dissipation basin downstream of the culvert at Oak Leather Drive will reduce erosion at the outfall. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
27.84	44.54	17.26

Project Design Considerations: This stream conveys water from two culverts at Oak Leather Drive. The stream has a longitudinal slope of approximately 1.6%. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment. The stream receives untreated runoff from two stormwater outfalls that are not directly connected to the main stream bed. The stream has meandered close to the back property line of one of the single family homes. Bank stability should be ensured at this point to prevent any further meander. This project is downstream of another stream restoration, PC9241. These projects should be coordinated to ensure maximum benefit.

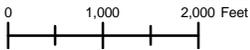
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1214	LF	\$200	\$242,800
Clear and Grub	1.40	AC	\$10,000	\$13,961
Plantings	1.40	AC	\$25,000	\$34,903
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$39,166
Ancillary Items	1	LS	5%	\$19,583
Base Construction Cost				\$450,413
Mobilization (5%)				\$22,521
Subtotal 1				\$472,934
Contingency (25%)				\$118,233
Subtotal 2				\$591,167
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$266,025
Total				\$857,192
Estimated Project Cost				\$860,000

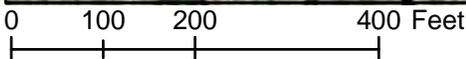
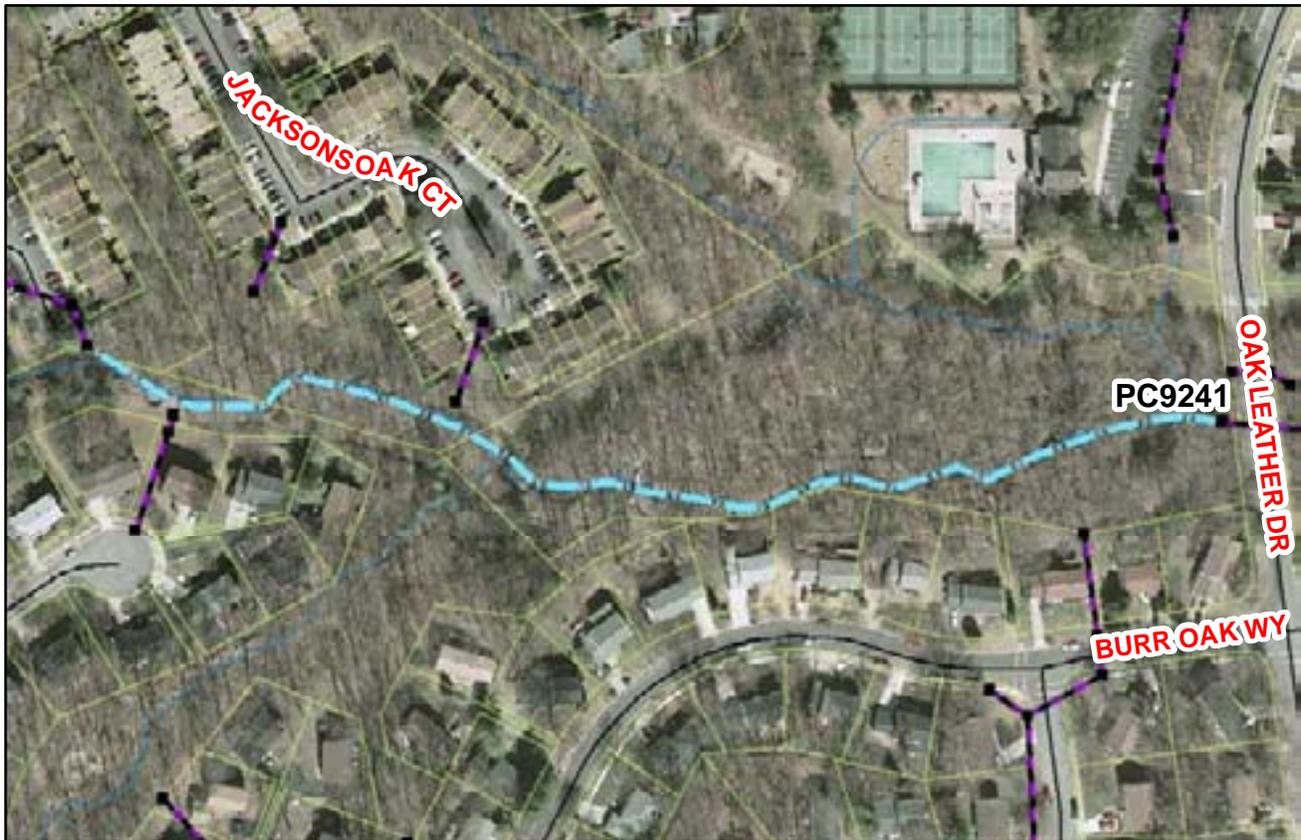
PC9241 Stream Restoration



Address: Behind 10734 Burr Oak Way, Burke, Virginia
Location: Stream near Burr Oak Way
Land Owner: Private –Burke Centre Conservancy (open space)
PIN: 0771 07 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The stream is upstream of a culvert under Oak Leather Drive. The stream conveys runoff from neighborhood and community recreation facilities. Stream stabilization will repair bank and bed erosion and restore stream morphology. This project will also improve the five direct stormwater outfalls to the stream bed. This project will focus on insuring proper buffers from the dense residential areas.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Restoring this stream will reduce erosion and instream sediment. Additionally, improving the five outfalls will help reduce fines from the roadway. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

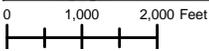
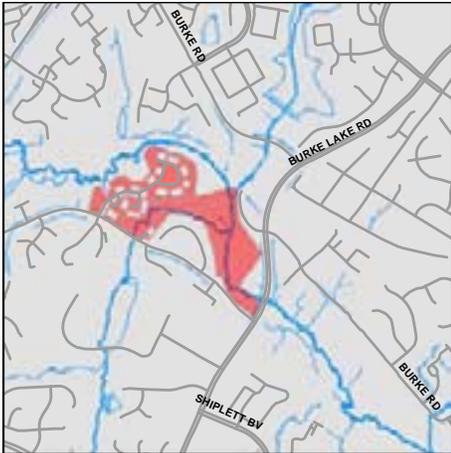
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
26.50	42.40	16.43

Project Design Considerations: The stream is located on Burke Centre Conservancy open space, but the stream runs close to the back property line of some of the single family homes and townhouses. Based on the County’s GIS contours, the stream might have meandered from its original stream bed and is now closer to the houses. Measures should be implemented to ensure proper stream buffers are maintained. The five stormwater outfalls should be reviewed and improved to ensure stabile stream morphology. Possible improvements to the outfalls include installing settling basins and boulder clusters. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment.

Cost:

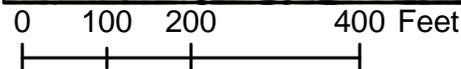
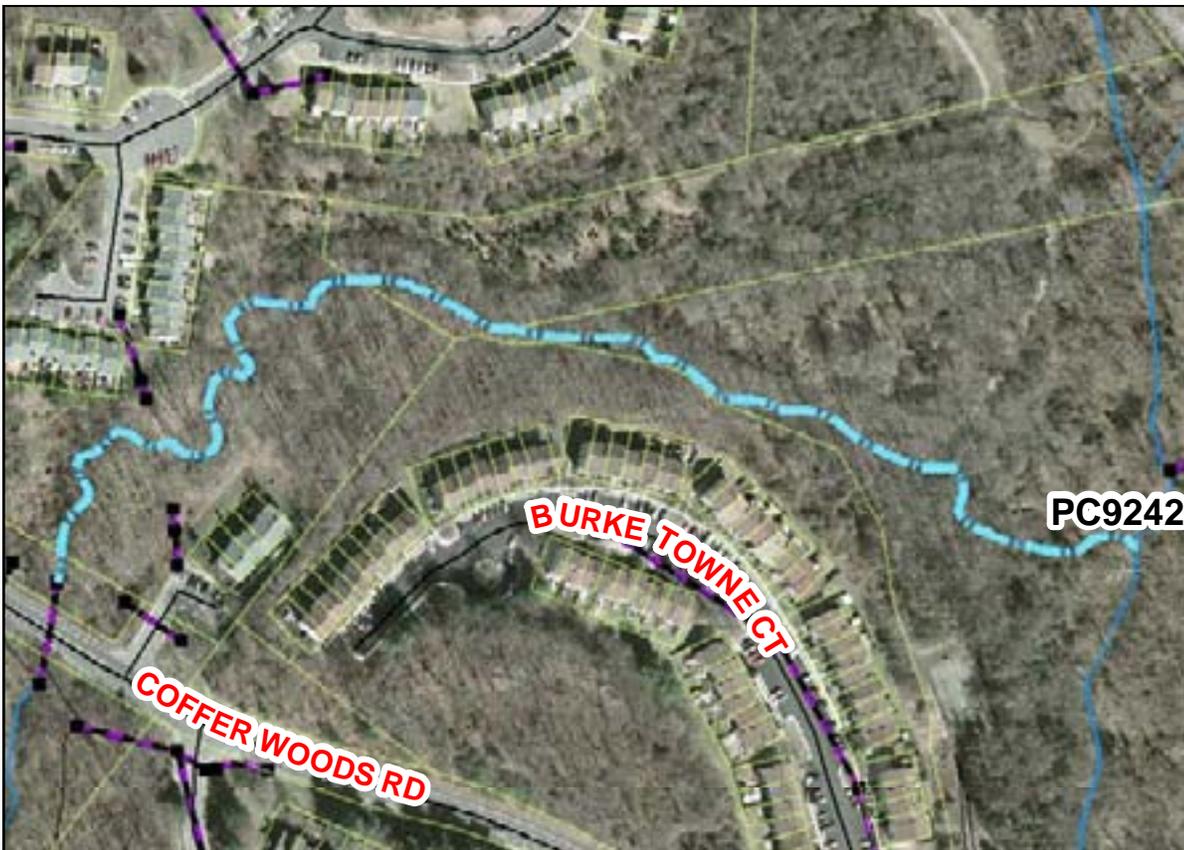
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1323	LF	\$200	\$264,600
Clear and Grub	1.52	AC	\$10,000	\$15,215
Plantings	1.52	AC	\$25,000	\$38,036
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$41,785
Ancillary Items	1	LS	5%	\$20,893
Base Construction Cost				\$480,528
Mobilization (5%)				\$24,026
Subtotal 1				\$504,555
Contingency (25%)				\$126,139
Subtotal 2				\$630,693
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$283,812
Total				\$914,506
Estimated Project Cost				\$920,000

PC9242 Stream Restoration



Address: Behind 5753 Burke Towne Ct, Burke, Virginia
Location: Stream near Burke Towne Ct.
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0781 19 A, 0781 21 B, 0781 21 A, 0781 13 A3
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes the repair of bank and bed erosion to a stream north of Burke Towne Court. The primary indicator is poor channel morphology. Stream receives runoff from adjacent residential neighborhood. The stream stabilization will reduce sediment loads while maintaining capacity of the stream and controlling unwanted meander. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stabilizing this stream will reduce erosion and instream sediment. The stream stabilization will reduce sediment while maintaining the capacity and controlling unwanted meander of the stream. Project will not only repair existing erosion but prevent future erosion over time by implementing the measures above. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
28.21	45.13	17.49

Project Design Considerations: Stream restoration starts at downstream point of culvert under Coffey Woods Road and extends to intersection with another stream. Stream runs close to dense residential development on Burke Towne Court and Mason Bluff Court. Stream is in dense woods. Efforts should be made to minimize impacts to existing mature vegetation.

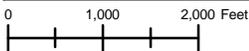
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1785	LF	\$200	\$357,000
Clear and Grub	2.05	AC	\$10,000	\$20,528
Plantings	2.05	AC	\$25,000	\$51,319
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$52,885
Ancillary Items	1	LS	5%	\$26,442
Base Construction Cost				\$608,173
Mobilization (5%)				\$30,409
Subtotal 1				\$638,582
Contingency (25%)				\$159,645
Subtotal 2				\$798,227
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$359,202
Total				\$1,157,430
Estimated Project Cost				\$1,160,000

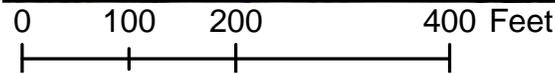
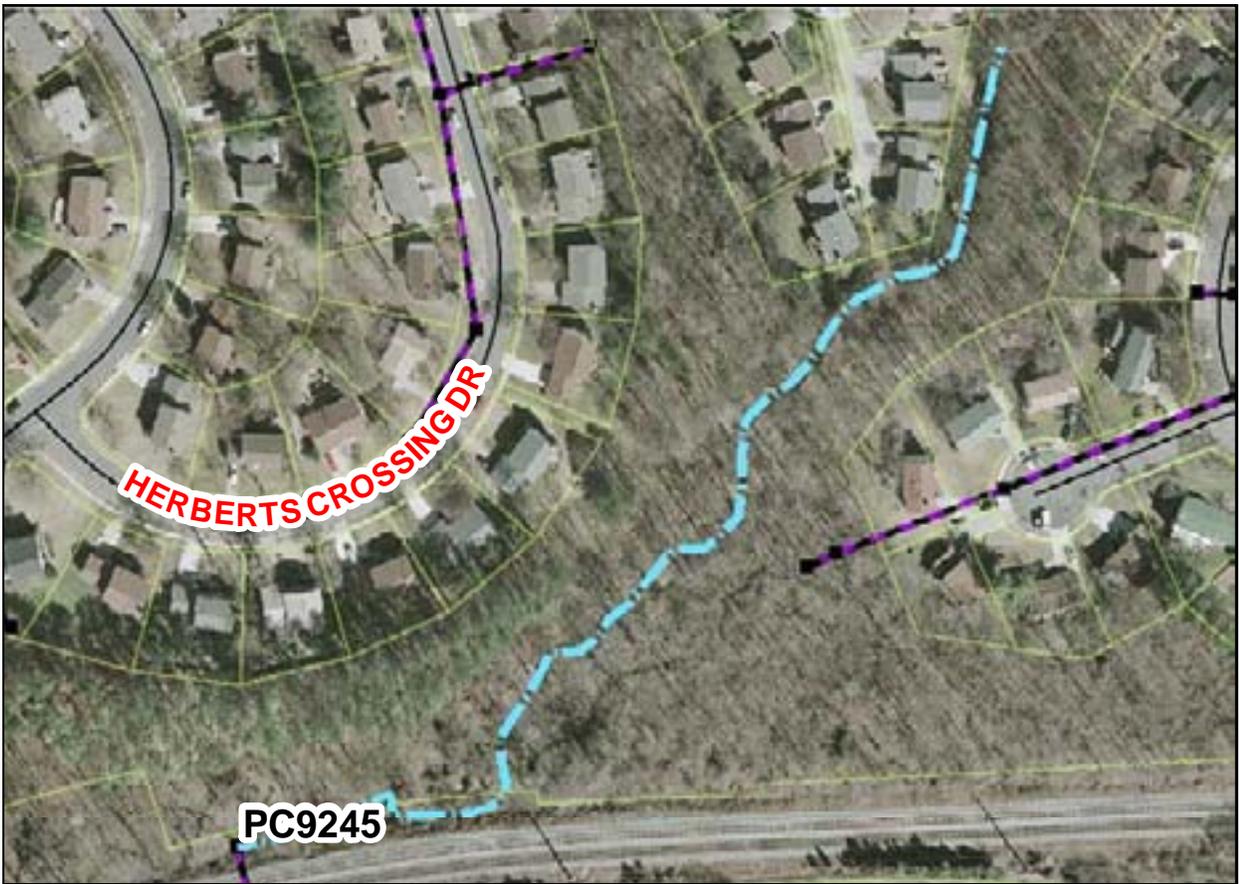
PC9245 Stream Restoration



Address: 5621 Herbert's Crossing Dr., Burke, Virginia
Location: Stream behind Herbert's Crossing Dr.
Land Owner: Private – Signal Hill Homeowners Association, Southern Railway
PIN: 0782 14 A, 0782 01 0047
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes repairing bank and bed erosion to restore channel morphology of the stream north of Burke Road. Primary indicator is poor channel morphology. Stream conveys runoff from adjacent single family residential neighborhoods to the stream through closed systems or direct runoff. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization will reduce sediment loads to the stream while maintaining the capacity of the channel and controlling unwanted meander. Repairing the stream erosion will also help minimize erosion of the streambanks over time. Erosion needs to be minimized, especially because of proximity to private homes. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

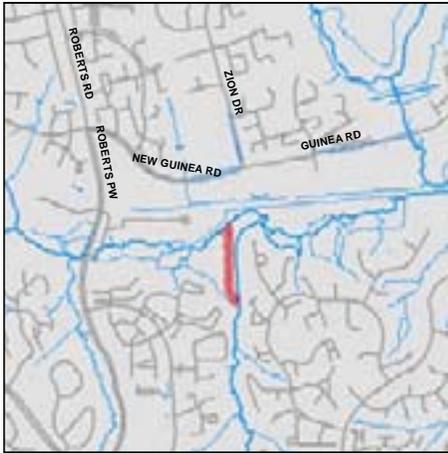
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
43.15	69.04	26.75

Project Design Considerations: Stream area is surrounded by significant dense residential development. Property is owned by Signal Hill Homeowners Association and does not have any easements on it, according to County-provided GIS. Efforts should be made to minimize impacts to existing vegetation. Portions of stream are very close to private lots and roadways. Upstream portion of stream (as shown) is a concrete channel.

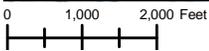
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1209	LF	\$200	\$241,800
Clear and Grub	1.39	AC	\$10,000	\$13,904
Plantings	1.39	AC	\$25,000	\$34,759
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$39,046
Ancillary Items	1	LS	5%	\$19,523
Base Construction Cost				\$449,032
Mobilization (5%)				\$22,452
Subtotal 1				\$471,483
Contingency (25%)				\$117,871
Subtotal 2				\$589,354
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$265,209
Total				\$854,563
Estimated Project Cost				\$860,000

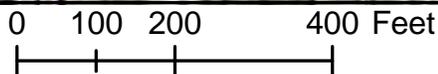
PC9246 Stream Restoration



Address: Behind 6001 Burke Commons Rd., Burke, Virginia
Location: Stream near Burke Commons Rd.
Land Owner: Private – Burke Centre Conservancy
PIN: 0772 01 0019B, 0772 09 C
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: This project proposes bank and bed erosion repair to improve poor channel morphology of a stream east of Roberts Parkway and south of the railroad tracks. Stream conveys runoff from adjacent dense residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



-  Stream Restoration
-  Storm Network
-  Property Line
-  Streams

Project Benefits: Stream restoration will reduce sediment loads while maintaining capacity and controlling unwanted meander. The proposed measures will repair existing erosion and prevent future erosion. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

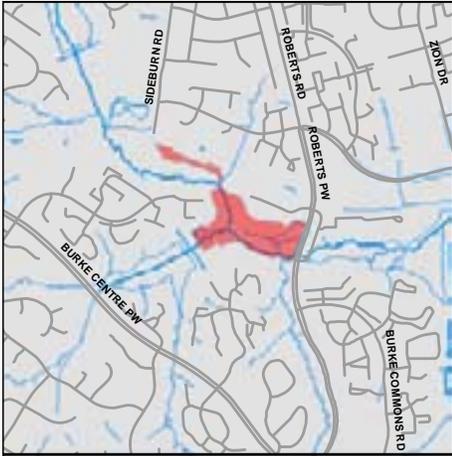
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
43.15	69.04	26.75

Project Design Considerations: Project located in wooded area behind houses. Throughout length of stream restoration, there are several footbridges crossing the water. Per a site visit, it was evident that some erosion control was in place. The bed of the stream is covered in large stones. There are several areas of significant sediment deposition. Efforts should be taken to minimize impacts to mature vegetation.

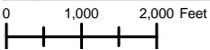
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1143	LF	\$200	\$228,600
Clear and Grub	0.34	AC	\$10,000	\$3,400
Plantings	0.34	AC	\$25,000	\$8,500
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$34,050
Ancillary Items	1	LS	5%	\$17,025
Base Construction Cost				\$391,575
Mobilization (5%)				\$19,579
Subtotal 1				\$411,154
Contingency (25%)				\$102,788
Subtotal 2				\$513,942
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$231,274
Total				\$745,216
Estimated Project Cost				\$750,000

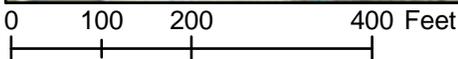
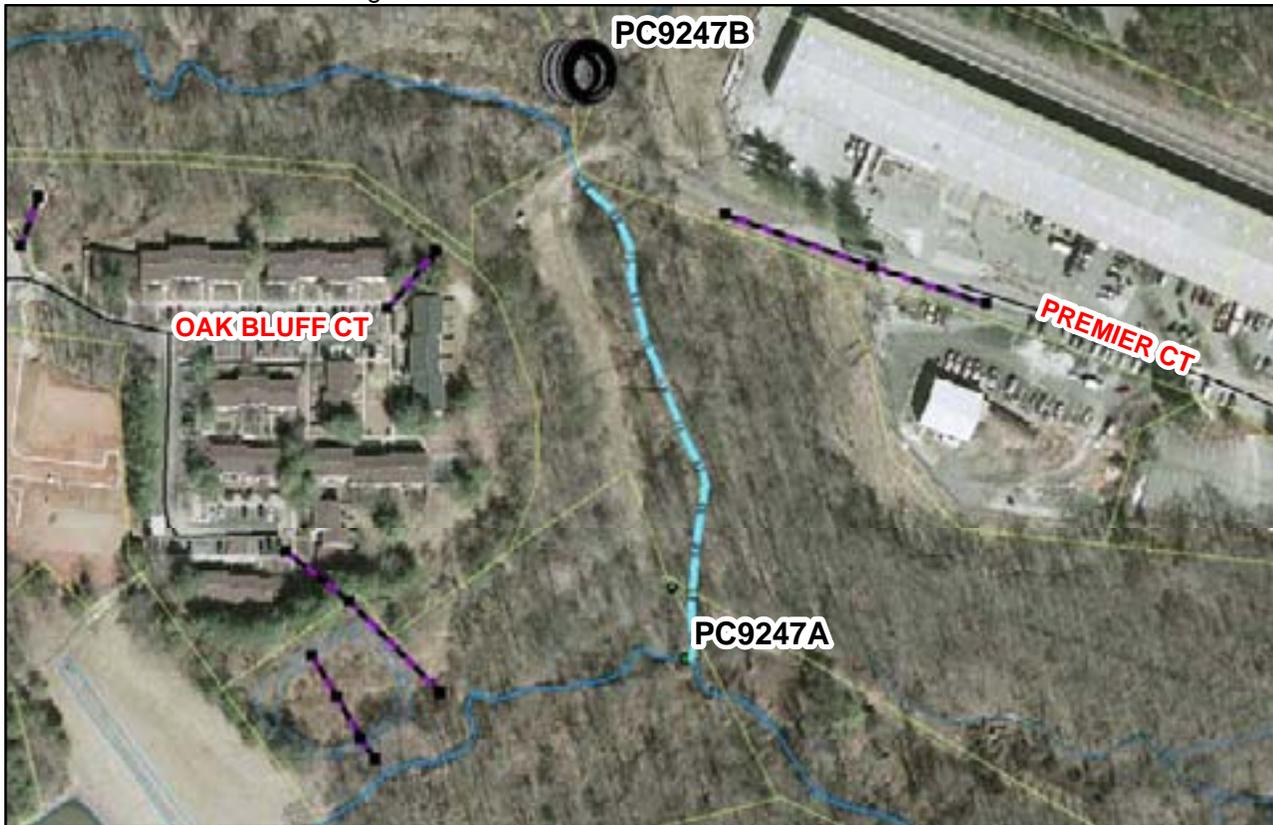
PC9247 Stream Restoration Suite



Address: 10400 Premier Ct., Burke, Virginia
Location: Stream near Premier Ct.
Land Owner: Private - Burke Centre Conservancy
PIN: 0772 01 0061C, 0772 01 0062, 0772 01 0062, 0772 01 0058B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: Subproject A is a stream restoration and will repair bed and bank erosion in the stream southwest of Premier Court at the VRE Station. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment. Subproject B is an obstruction removal southeast of Ships Curve Lane. Primary indicators are flood complaints which have been field verified. This project proposes the removal of obstructions blocking the stream channel to restore natural conditions.



- Stream Restoration
- Buffer Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stabilizing this stream will reduce instream sediment and its associated pollutants. The proposed measures will repair the erosion that has occurred over time and help minimize and prevent future erosion. The obstruction removal will help restore the function of the stream by removing existing unnatural impediments. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
11.81	18.90	7.32

Project Design Considerations: Stream is accesible by a non-paved road. Stream is in a heavily wooded area and measures should be taken to minimize impacts to trees . Obstructions appear to be relatively small in size. Records show no stormwater easements. Project is located on private land owned by Burke Centre Conservancy. This suite of projects is located upstream of another stream restoration project, PC9243. Coordination of these project might result in additional benefits.

Cost:

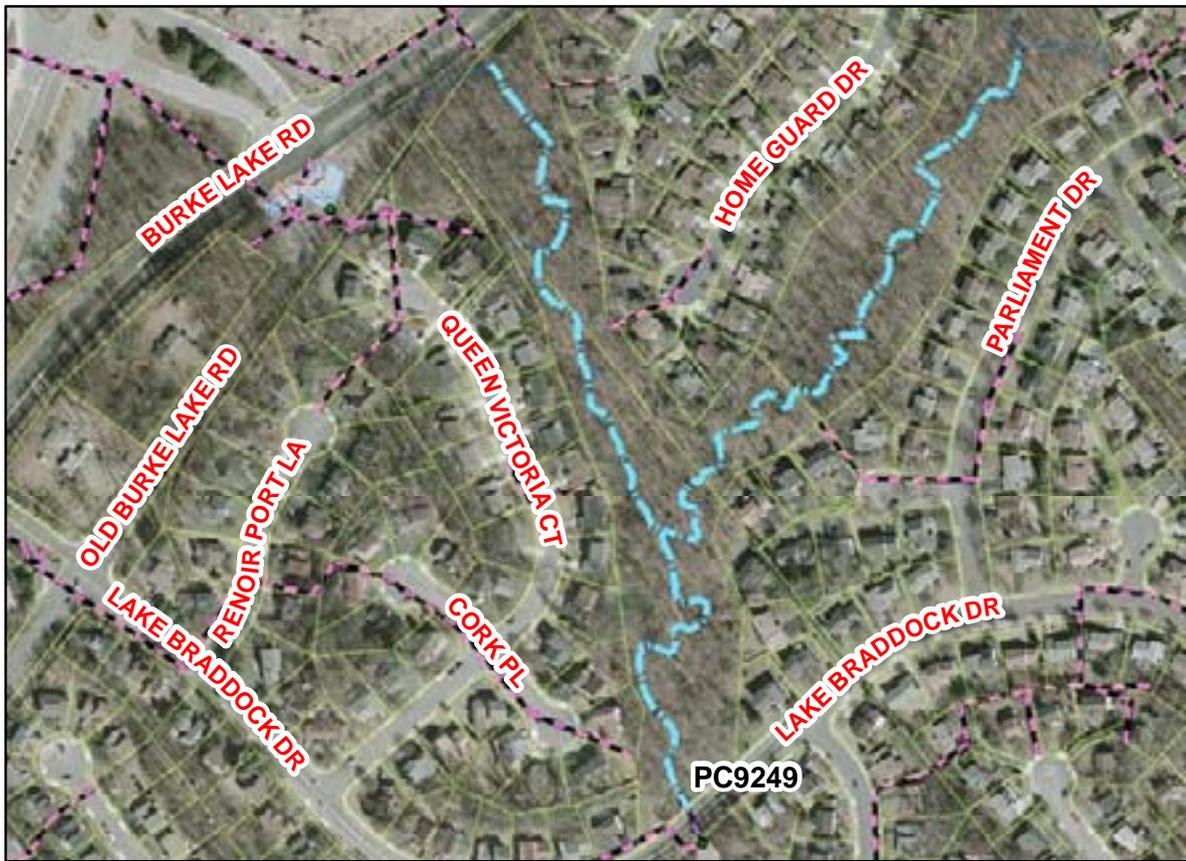
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Stream Stabilization Behind Cove Landing Road				
Construct New Channel	574	LF	\$200	\$114,800
Clear and Grub	0.66	AC	\$10,000	\$6,600
Plantings	0.66	AC	\$25,000	\$16,500
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$23,790
Ancillary Items	1	LS	5%	\$11,895
Subproject B Dumpsite Removal near VRE Burke Centre Sta.				
Dumpsite Removal	1	LS	\$5,250	\$5,250
Base Construction Cost				\$278,835
Mobilization (5%)				\$13,942
Subtotal 1				\$292,777
Contingency (25%)				\$73,194
Subtotal 2				\$365,971
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$164,687
Total				\$530,658
Estimated Project Cost				\$540,000

PC9249 Stream Restoration



Address: Behind 5565 Queen Victoria Court, Burke, Virginia
Location: Stream near Queen Victoria Court
Land Owner: Private – Southport Homeowners Association, Signal Hill Homes Association
PIN: 0782 19 A, 0782 16 C, 0782 14 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project is proposed on the stream northwest of Parliament Drive and east of Queen Victoria Court, including the outfalls from Lake Braddock Secondary School and Braddock Road, extending to Lake Braddock Drive. This project is proposed to repair bank and bed erosion through the use of bank shaping, toe of slope protection, erosion control fabric and rapid vegetation establishment. The primary indicator is poor channel morphology and macro invertebrate. Stream stabilization will reduce sediment loads while maintaining capacity and controlling unwanted meander. It will also improve safety of a foot path/trail heavily used by Lake Braddock Secondary School students for educational activities and travelling to/from school, as well as for recreation and travelling to/from Metro bus public transportation by residents of several homeowner associations



0 200 400 800 Feet

Stream Restoration
 Storm Network
 Property Line
 Streams

Project Benefits: Restoring this impaired stream will reduce erosion and instream sediment and the phosphorus and nitrogen pollutants associated with the erosion. Below are the estimated pollutant removal amounts for this project. Also this restoration will improve the three stormwater outfalls to this section of the stream and will reduce the roadway sediment loading to the stream. This project will also provide educational benefit on the importance of proper stormwater management through posting of signage about the project. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
191.81	306.89	118.92

Project Design Considerations: This restoration is located in the Signal Hills and Southport Homeowners open space. It appears that the surrounding development has no stormwater facilities. This area appears completely developed, so the channel's geomorphology should be stable making this site favorable for stream improvements. Possible stream bank repair measures include rootwad revetments, streambank shaping, erosion control fabrics, or live stakes. This stream is adjacent to a trail used by the Lake Braddock Secondary School. Improving this stream will prevent further stream encroachment on the trail. This project is located downstream of the new stormwater project PC9141 and upstream of the outfall improvement project PC9704.

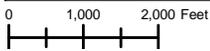
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	3353	LF	\$200	\$670,600
Clear and Grub	3.86	AC	\$10,000	\$38,560
Plantings	3.86	AC	\$25,000	\$96,399
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$90,556
Ancillary Items	1	LS	5%	\$45,278
Base Construction Cost				\$1,041,392
Mobilization (5%)				\$52,070
Subtotal 1				\$1,093,462
Contingency (25%)				\$273,365
Subtotal 2				\$1,366,827
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$615,072
Total				\$1,981,899
Estimated Project Cost				\$1,990,000

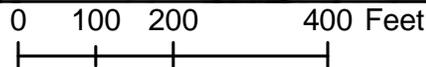
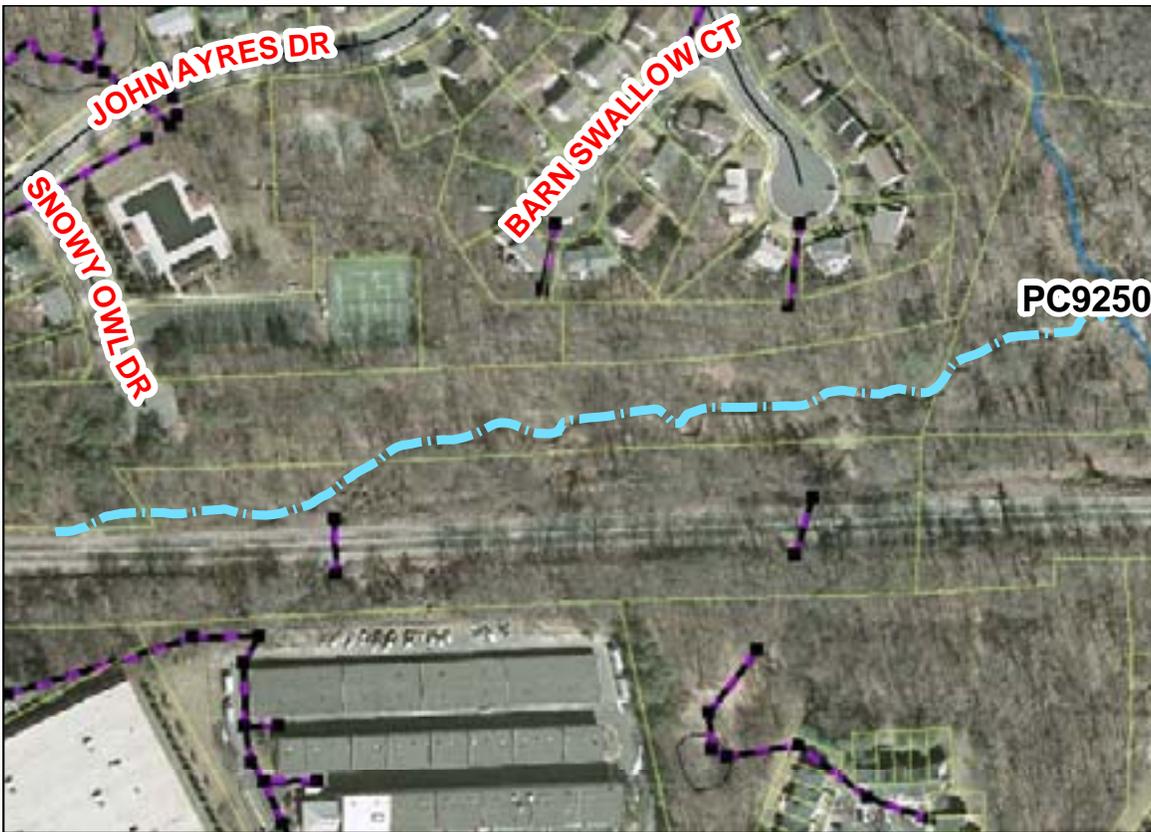
PC9250 Stream Restoration



Address: Behind 10602 Goldeneye Lane, Fairfax, Virginia
Location: Stream near Goldeneye Lane
Land Owner: Public/Local – Fairfax County Park Authority, Fairfax County Government, Southern Railway
PIN: 0772 01 0001, 0771 12 A, 0771 01 0058
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The stream is south of Golden Eye Lane and north of the railroad tracks. The stream receives runoff from adjacent neighborhoods. This project proposes to repair bank and bed erosion and restore channel morphology. The primary indicator is poor channel morphology. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This restoration will reduce the sediment loads to the stream while maintaining capacity and controlling the meandering. The proposed measures will help repair existing erosion and prevent future erosion over time. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
85.65	137.04	53.10

Project Design Considerations: Stream is on property owned by Fairfax County Park Authority, Fairfax County Government and Southern Railway. The stream runs parallel to railroad tracks. Efforts should be made to minimize impacts to mature vegetation. Coordination with Southern Railway will be necessary to ensure there will be no impacts to the tracks.

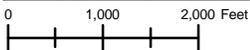
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1471	LF	\$200	\$294,200
Clear and Grub	1.69	AC	\$10,000	\$16,917
Plantings	1.69	AC	\$25,000	\$42,291
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$45,341
Ancillary Items	1	LS	5%	\$22,670
Base Construction Cost				\$521,419
Mobilization (5%)				\$26,071
Subtotal 1				\$547,490
Contingency (25%)				\$136,872
Subtotal 2				\$684,362
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$307,963
Total				\$992,325
Estimated Project Cost				\$1,000,000

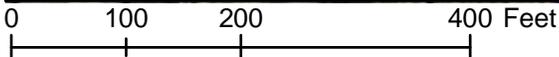
PC9251 Stream Restoration



Address: Behind 9313 Winbourne Road, Burke, Virginia
Location: Stream near Winbourne Road
Land Owner: Private – Lake Braddock Community Association
PIN: 0694 10 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: The stream is located between Olley Lane and Winbourne Road. The stream conveys runoff from adjacent roads and single family residential neighborhoods. Stream conveys runoff from both a closed system and sheet flow from roads and homes to the north, east and west. The banks of the existing stream are significantly eroded. This project proposes repairing bank and bed erosion to restore channel morphology.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream stabilization will reduce sediment loads to the stream, maintain the capacity of the stream channel, and control unwanted meander. These measures will help reduce the erosion that is occurring over time. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

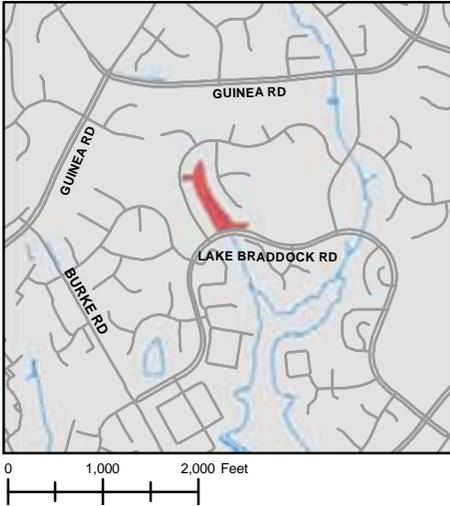
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
8.23	13.16	5.10

Project Design Considerations: Existing stream bed is dry and appears to have been reinforced with riprap in sections. The restoration will focus on improving the connection of the three storm pipes to the stream. Areas of streambed erosions will be stabilized by using bank shaping techniques such as rock toe enforcements, bank revegetation, and erosion control fabric reinforcements. The stream is located on open space property.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	564	LF	\$200	\$112,800
Clear and Grub	0.65	AC	\$10,000	\$6,486
Plantings	0.65	AC	\$25,000	\$16,215
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$23,550
Ancillary Items	1	LS	5%	\$11,775
Base Construction Cost				\$270,826
Mobilization (5%)				\$13,541
Subtotal 1				\$284,367
Contingency (25%)				\$71,092
Subtotal 2				\$355,459
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$159,957
Total				\$515,416
Estimated Project Cost				\$520,000

PC9252 Stream Restoration



Address: Next to 9535 Wallingford Drive, Burke, Virginia
Location: Stream near Wallingford Drive
Land Owner: Private – Lake Braddock Homeowners Association
PIN: 0693 06 G
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes repairing bank and bed erosion to restore channel morphology of the stream near Wallingford Drive. Stream stabilization will reduce sediment loads to the stream while maintaining the capacity and controlling unwanted meander. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment. Stream is adjacent to the roadway.



Project Benefits: This stream restoration will reduce erosion and instream sediment. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

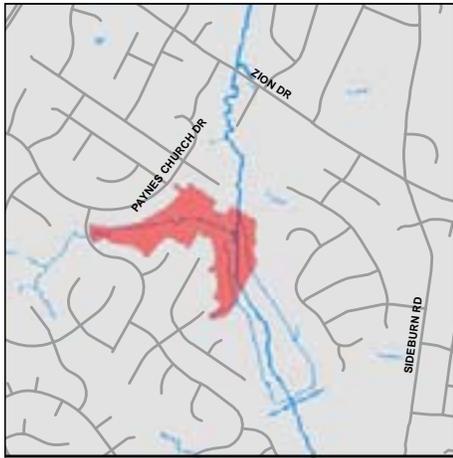
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
3.50	5.59	2.17

Project Design Considerations: This stream is located in the Lake Braddock open space and is near a stream daylighting project (PC9253 – middle left of restoration length) and a bioswale project (PC9544C – southeast of cul-de-sac). This project should be coordinated with the other project to maximize its benefits and minimize costs. This stream receives runoff from an upstream culvert and two other storm pipe outfalls.

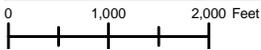
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	393	LF	\$200	\$78,600
Clear and Grub	0.45	AC	\$10,000	\$4,520
Plantings	0.45	AC	\$25,000	\$11,299
Additional Cost, First 500 LF	393	LF	\$200	\$78,600
Erosion and Sediment Control	1	LS	10%	\$17,302
Ancillary Items	1	LS	5%	\$8,651
Base Construction Cost				\$198,971
Mobilization (5%)				\$9,949
Subtotal 1				\$208,920
Contingency (25%)				\$52,230
Subtotal 2				\$261,149
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$117,517
Total				\$378,667
Estimated Project Cost				\$380,000

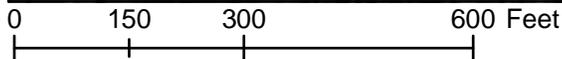
PC9254 Stream Restoration



Address: Behind 10757 John Turley Place, Fairfax, Virginia
Location: Stream near John Turley Place
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 01 0035F, 0683 05 A2, 0683 01 0035B, 0683 05 A, 0683 05 B, 0683 05 C
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The project consists of restoration of a stream that discharges into Woodglen Pond. The primary indicator is poor channel morphology. This project proposes restoring the stream by repairing bank and bed erosion and restoring channel morphology. This will reduce sediment loads to the stream while maintaining capacity of the stream channel and controlling unwanted meander of the stream. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabric, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: This stream restoration will reduce erosion and instream sediment. This project will stabilize banks and reestablish the streambed away from the single family homes. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

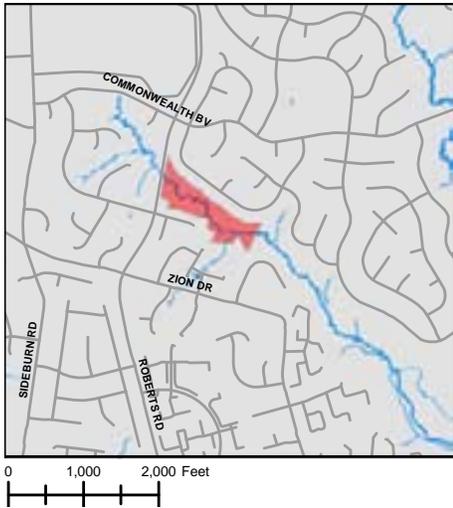
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
123.13	197.00	76.34

Project Design Considerations: This stream restoration is bordered on the upstream end by a culvert under Broadwater Drive and two stormwater system outfalls. Going east, the stream has meandered too close to the back property line of houses near another stormwater outfall. This outfall should be improved to include a settling basin and the stream channel should be directed farther south. The other three stormwater outfall connections should be improved to ensure a stable connection to the stream.

Cost:

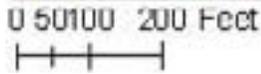
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1566	LF	\$200	\$313,200
Clear and Grub	1.80	AC	\$10,000	\$18,009
Plantings	1.80	AC	\$25,000	\$45,023
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$47,623
Ancillary Items	1	LS	5%	\$23,812
Base Construction Cost				\$547,666
Mobilization (5%)				\$27,383
Subtotal 1				\$575,050
Contingency (25%)				\$143,762
Subtotal 2				\$718,812
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$323,465
Total				\$1,042,277
Estimated Project Cost				\$1,050,000

PC9256 Stream Restoration



Address: Behind 5351 Brandon Ridge Way, Fairfax, Virginia
Location: Stream near Brandon Ridge Way
Land Owner: Public/Local - Fairfax County Park Authority
PIN: 0684 09 E1
Control Type: Water quality control
Drainage Area:
Receiving Waters: Tributary of Rabbit Branch

Description: The stream north of Windsor Hills Drive has indicators of poor channel morphology. In order to improve the channel, this project proposes repairing bank and bed erosion. This stream is located on Fairfax County Park Authority land. The stream receives water from adjacent residential neighborhoods. The stormwater is collected in pipes and receives no treatment before discharging to the stream. Stream stabilization will reduce sediment while maintaining capacity of the channel and controlling unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Restoring this stream will reduce erosion and instream sediment. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

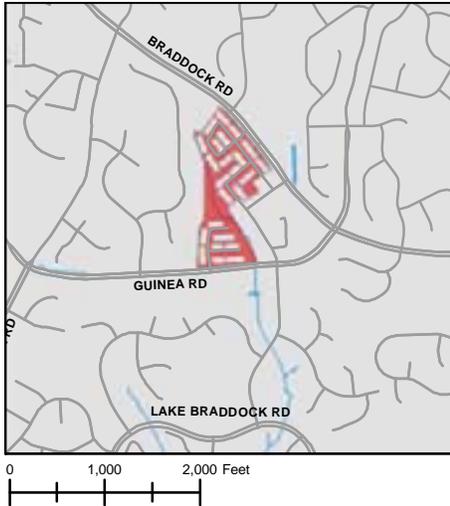
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
19.94	31.90	12.36

Project Design Considerations: The residential area surrounding the stream has been developed long enough for the stream channel to adapt to convey the increased flows of the development. Grade control measures such as step pools and rock cross vanes should be implemented to ensure the future stability of the stream. Streambank shaping techniques such as erosion control fabrics and vegetation establishment should be included to stabilize exposed soil and prevent erosion and sediment loading to the stream. Additionally, outfall improvements can be made at the storm pipe connections to the stream bed.

Cost:

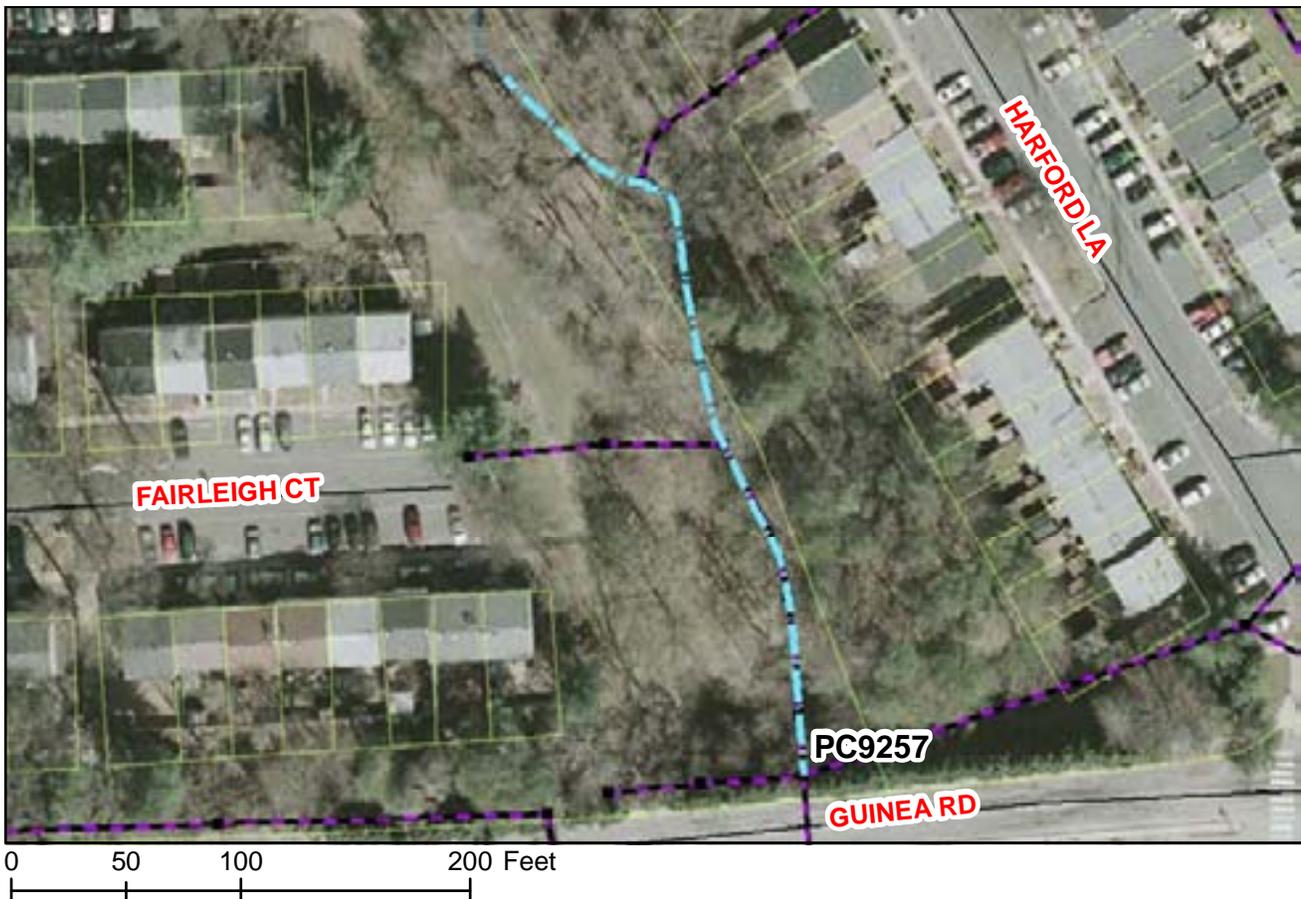
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1659	LF	\$200	\$331,800
Clear and Grub	1.91	AC	\$10,000	\$19,079
Plantings	1.91	AC	\$25,000	\$47,696
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$49,857
Ancillary Items	1	LS	5%	\$24,929
Base Construction Cost				\$573,361
Mobilization (5%)				\$28,668
Subtotal 1				\$602,029
Contingency (25%)				\$150,507
Subtotal 2				\$752,536
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$338,641
Total				\$1,091,178
Estimated Project Cost				\$1,100,000

PC9257 Stream Restoration



Address: Next to 9404 Fairleigh Court, Burke, Virginia
Location: Stream near Fairleigh Court
Land Owner: Private –Lake Braddock Community Association
PIN: 0694 11 C, 0694 11 D
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project consists of restoration of a stream near Fairleigh Court, which receives runoff from closed storm systems that drain residential neighborhoods. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining stream capacity and controlling unwanted meander. The project will improve storm outfalls to the stream and daylight a portion of the storm system.



Stream Restoration
 Storm Network
 Property Line
 Streams

Project Benefits: This stream restoration will reduce erosion and instream sediment. Improving the storm pipe outfalls to stream bed connections will help reduce sediment from the untreated roadway runoff. Daylighting the storm pipe will allow for greater infiltration, baseflow, and a decrease in stormwater temperature. Below are the stream's estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

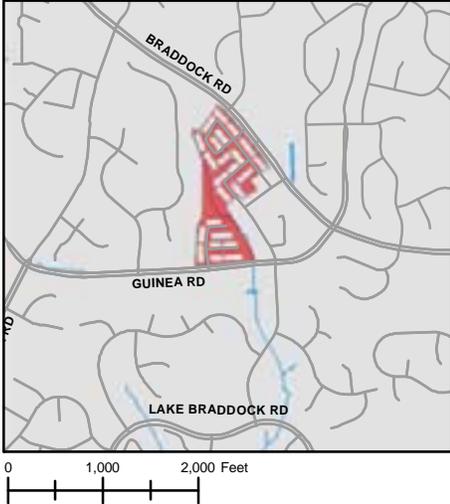
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
5.13	8.21	3.18

Project Design Considerations: Project is just downstream of another pipe daylighting project, PC9258. Both projects are located on Lake Braddock open space. This stream is believed to be a primary source of downstream sediment. In fact, the dry pond downstream has recently been cleaned, but there is concern of the pond having insufficient infiltration of stormwater due to sediment clogging the pond floor. Daylighting the upstream storm system and creating sediment forebays for the storm outfalls will help reduce sediment, improve water quality, and increase infiltration. Currently the stream is dry, eroded, and has debris (see photo).

Cost:

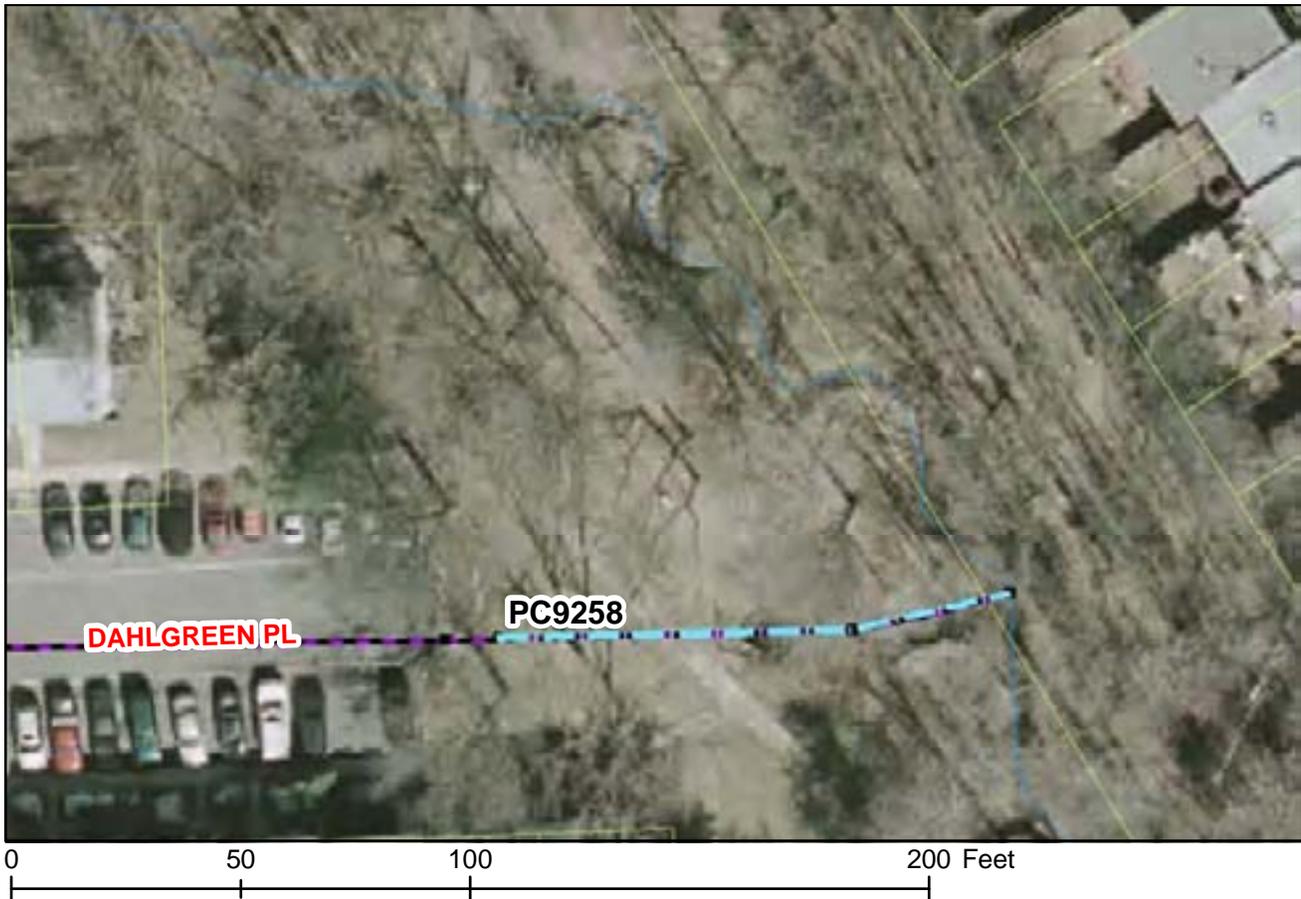
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	352	LF	\$200	\$70,400
Clear and Grub	0.40	AC	\$10,000	\$4,048
Plantings	0.40	AC	\$25,000	\$10,120
Additional Cost, First 500 LF	352	LF	\$200	\$70,400
Erosion and Sediment Control	1	LS	10%	\$15,497
Ancillary Items	1	LS	5%	\$7,748
Base Construction Cost				\$178,213
Mobilization (5%)				\$8,911
Subtotal 1				\$187,124
Contingency (25%)				\$46,781
Subtotal 2				\$233,905
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$105,257
Total				\$339,162
Estimated Project Cost				\$340,000

PC9258 Stream Restoration



Address: Next to 5101 Dahlgreen Place, Burke, Virginia
Location: Stream near Dahlgreen Place
Land Owner: Private – Lake Braddock Community Association
PIN: 0694 11 D
Control Type: Water quality and quantity control
Drainage Area: 4.98 acres
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes daylighting a pipe from a residential neighborhood (Dahlgreen Place) farther upstream. The primary indicator is poor channel morphology. This project will return the water to its natural state. This will reduce the velocity at which stormwater enters the stream. Additionally, the daylighting will provide more opportunity for the stormwater to infiltrate. This will help reduce runoff rates and stream erosion.



Project Benefits: Restoring this stream will lessen the amount of erosion downstream and result in less instream sediment. Daylighting this pipe will allow the stormwater to return to a natural state earlier, which will allow the water to infiltrate better and will help reduce erosive velocities. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.65	2.64	1.02

Project Design Considerations: This project is located in Lake Braddock Community open space. Records show no easements. Stormwater runoff from these townhouses receives no treatment before being directly discharged to the stream. The existing outfall is reinforced with rip rap, but still shows signs of scour from erosive velocities. Daylighting the existing pipe farther upstream would increase the chance for the stormwater to infiltrate and for vegetation to absorb/ breakdown some of the pollutants. Depending on the slope of the pipe, stepping pools may be required. Other measures at this site could be the creation of storage below the outfall.

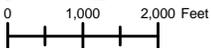
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	113	LF	\$200	\$22,600
Clear and Grub	0.13	AC	\$10,000	\$1,300
Plantings	0.13	AC	\$25,000	\$3,249
Additional Cost, First 500 LF	113	LF	\$200	\$22,600
Erosion and Sediment Control	1	LS	10%	\$4,975
Ancillary Items	1	LS	5%	\$2,487
Base Construction Cost				\$57,210
Mobilization (5%)				\$2,861
Subtotal 1				\$60,071
Contingency (25%)				\$15,018
Subtotal 2				\$75,089
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$33,790
Total				\$108,879
Estimated Project Cost				\$110,000

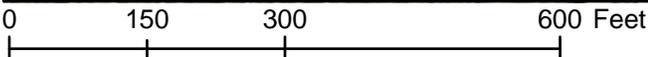
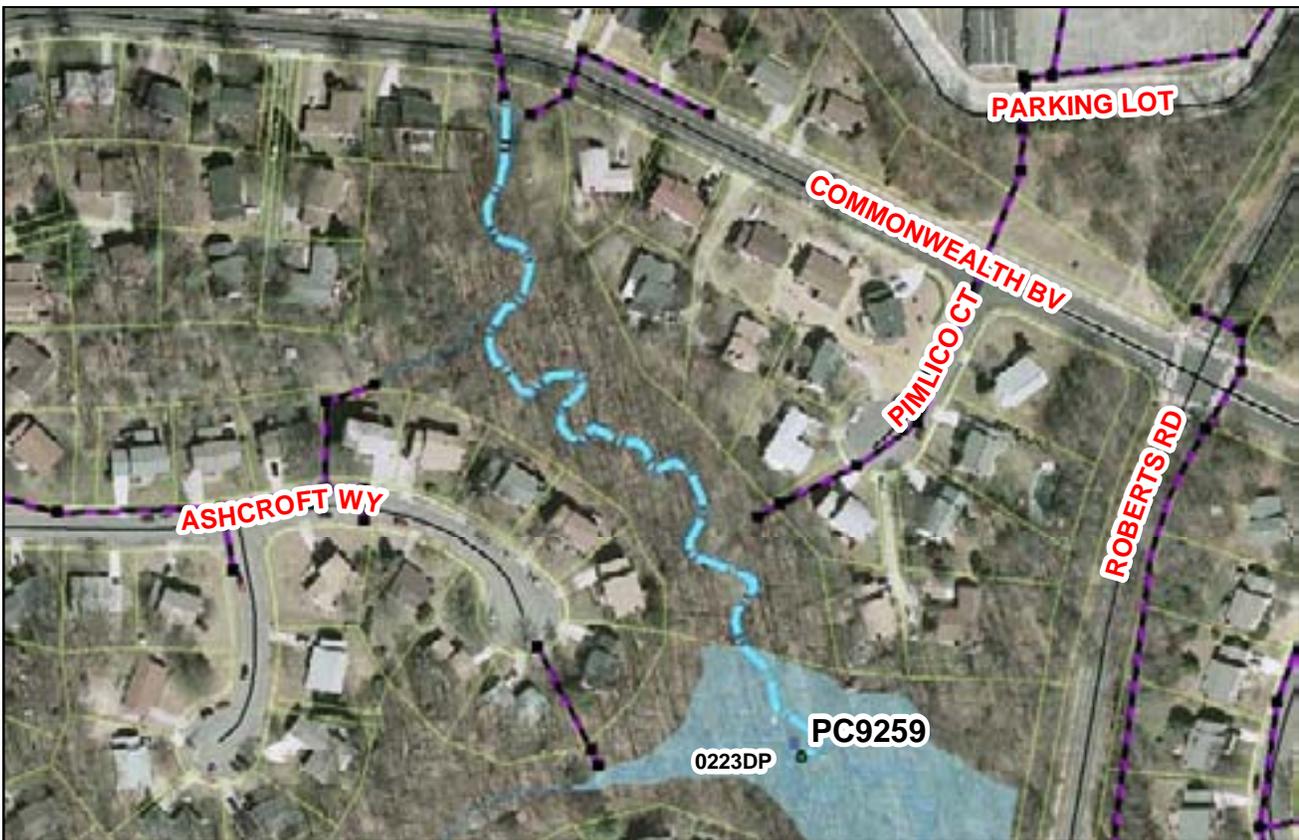
PC9259 Stream Restoration



Address: Behind 5220 Nottinghill Lane, Fairfax, Virginia
Location: Stream near Nottinghill Lane
Land Owner: Private – Kings Park West Community Association
PIN: 0684 09 C, 0684 09 A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch



Description: This project proposes the repair of bank and bed erosion to a stream that discharges to the existing pond 0223DP. The stream is located in a wooded open space. The primary indicator is poor channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity. Stabilizing this stream will help reduce the sediment to the pond.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Reducing erosion from this stream will reduce instream sediment and its associated pollutants. Stabilizing the stream will lessen the sediment load to the downstream pond and will decrease the maintenance necessary for the pond. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

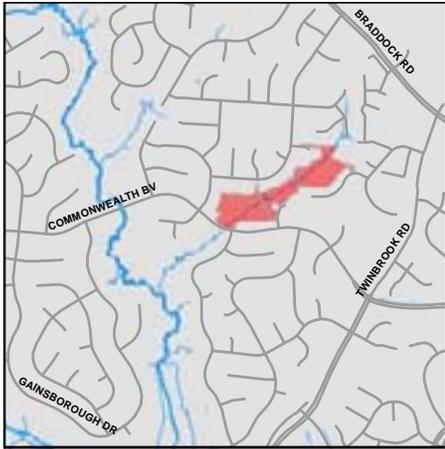
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
11.43	18.28	7.08

Project Design Considerations: This stream conveys water upstream of Commonwealth Blvd. Additionally, the stream receives untreated roadway runoff from closed pipes at Pimlico Court and Commonwealth Blvd. The stream is located in Kings Park West open space. This restoration should be coordinated with the stormwater pond retrofit of 0223DP (PC9135). Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.

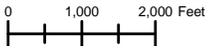
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1100	LF	\$200	\$220,000
Clear and Grub	1.27	AC	\$10,000	\$12,650
Plantings	1.27	AC	\$25,000	\$31,625
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$36,428
Ancillary Items	1	LS	5%	\$18,214
Base Construction Cost				\$418,916
Mobilization (5%)				\$20,946
Subtotal 1				\$439,862
Contingency (25%)				\$109,966
Subtotal 2				\$549,828
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$247,422
Total				\$797,250
Estimated Project Cost				\$800,000

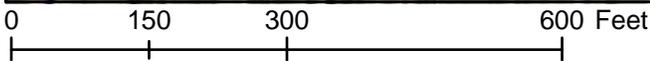
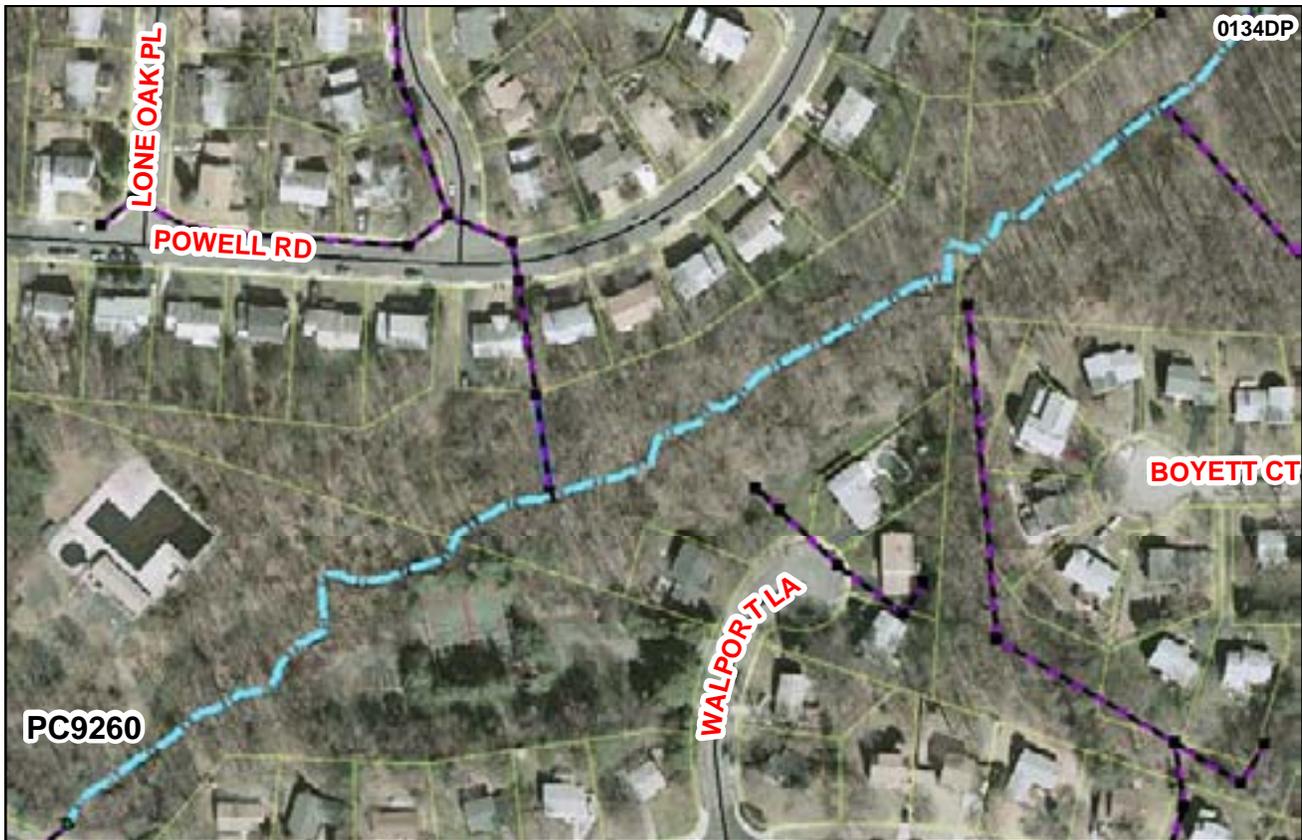
PC9260 Stream Restoration



Address: Near 9800 Commonwealth Blvd., Fairfax, Virginia
Location: Stream near Commonwealth Blvd.
Land Owner: Private –Twinbrook HOA, Maywood Terrace HOA, Commonwealth Swim Club Inc.
PIN: 0693 09 E, 0693 07 A1, 0693 05 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch



Description: The stream runs parallel to Powell Road towards Commonwealth Boulevard and has indicators of poor channel morphology. This project proposes to repair bank and bed erosion and restore channel morphology. Stream stabilization will reduce sediment loads to the stream while maintaining capacity of the channel and controlling unwanted meander. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Restoring this stream will reduce instream sediment and its associated pollutants. Additionally, improving the five stream outfalls will help reduce erosive velocities in the stream. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
15.25	24.40	9.46

Project Design Considerations: This restoration is downstream of the proposed stormwater pond retrofit of 0134DP (Project PC9137). The stream restoration should be coordinated with PC9137 to help maximize the benefits of both projects. This stream has a longitudinal slope of approximately 1.8% and receives runoff from four stormwater outfalls. Three of the outfalls appear to directly discharge to the stream and one is slightly disconnected. Settling basins for these outfalls would reduce flow velocities and allow for some instream settling of any roadway fines. Records show no easements for the stream. This project will need to be coordinated between the three private entities of Twinbrook HOA, Maywood Terrace HOA, and Commonwealth Swim Club Inc.

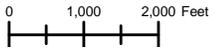
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1673	LF	\$200	\$334,600
Clear and Grub	1.92	AC	\$10,000	\$19,240
Plantings	1.92	AC	\$25,000	\$48,099
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$50,194
Ancillary Items	1	LS	5%	\$25,097
Base Construction Cost				\$577,229
Mobilization (5%)				\$28,861
Subtotal 1				\$606,090
Contingency (25%)				\$151,523
Subtotal 2				\$757,613
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$340,926
Total				\$1,098,539
Estimated Project Cost				\$1,100,000

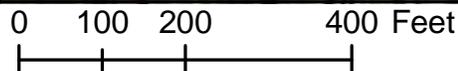
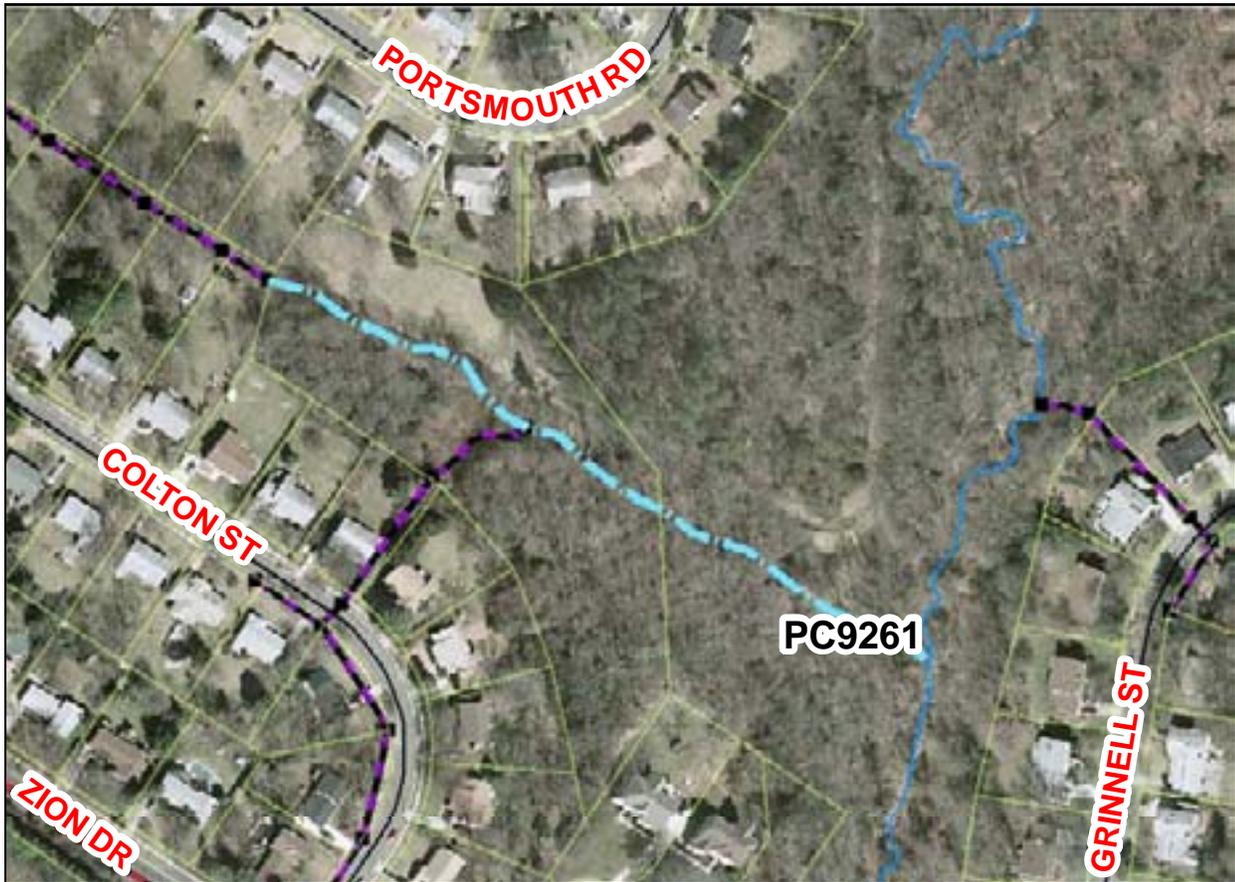
PC9261 Stream Restoration



Address: Behind 5214 Grinnell Street, Fairfax, Virginia
Location: Stream near Grinnell St. (northwest reach)
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 0408 A, 0683 0407 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: This project proposes restoration of a stream running parallel to Colton Street. The project consists of repairing bank and bed erosion and restoring channel morphology. The primary indicator is poor channel morphology. Stream conveys runoff from adjacent residential development. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics, and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stream stabilization of this stream segment will reduce sediment loads while maintaining capacity and controlling unwanted meander. Measures will be put in place to repair existing erosion and prevent future erosion over time. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

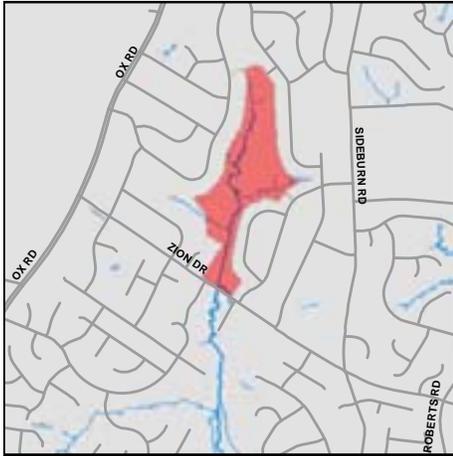
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
7.64	12.23	4.74

Project Design Considerations: The section of stream to be restored is entirely on property owned by Fairfax County Park Authority. The adjacent residential area is piped into the stream without any pre-treatment. During restoration of this stream great effort will be taken to minimize impacts to mature vegetation and to maintain the buffer.

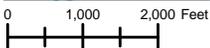
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	938	LF	\$200	\$187,600
Clear and Grub	1.08	AC	\$10,000	\$10,787
Plantings	1.08	AC	\$25,000	\$26,968
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$32,535
Ancillary Items	1	LS	5%	\$16,268
Base Construction Cost				\$374,158
Mobilization (5%)				\$18,708
Subtotal 1				\$392,866
Contingency (25%)				\$98,216
Subtotal 2				\$491,082
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$220,987
Total				\$712,069
Estimated Project Cost				\$720,000

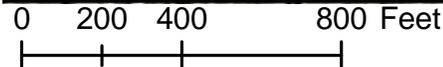
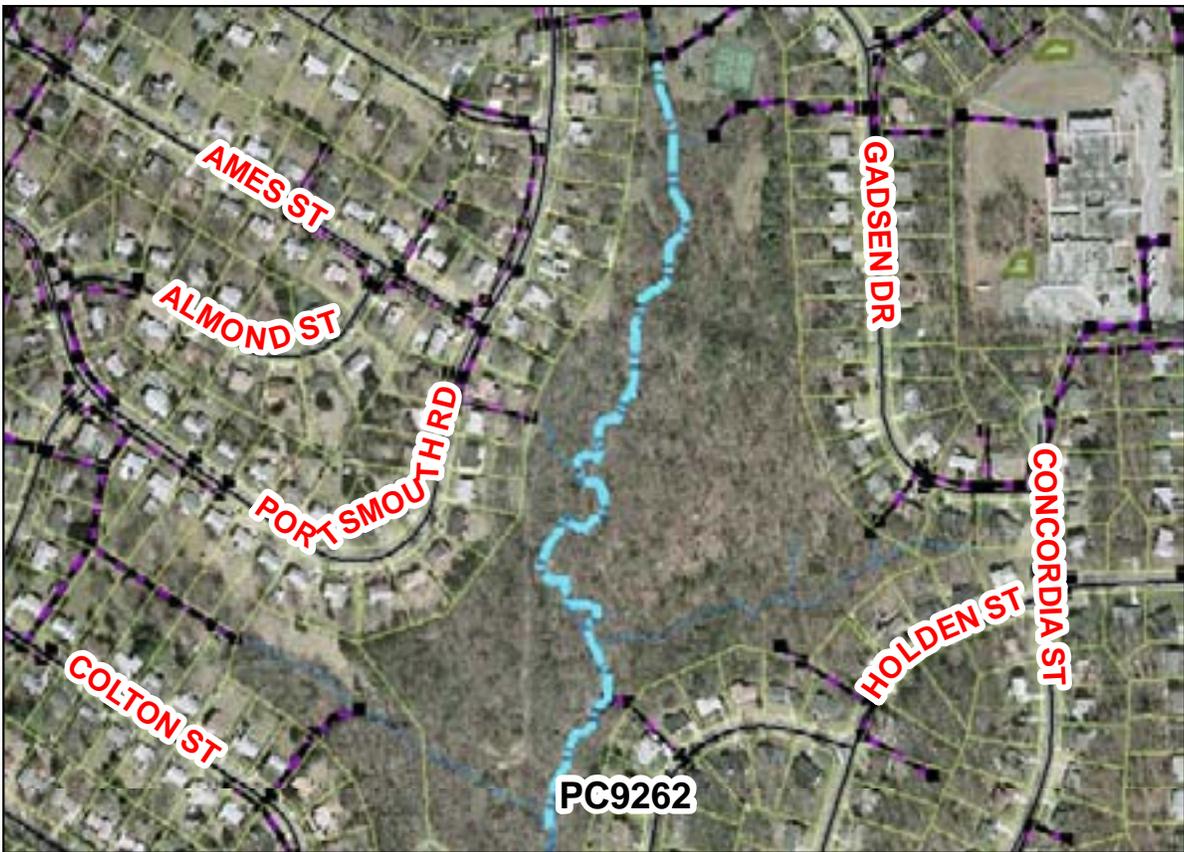
PC9262 Stream Restoration



Address: Behind 5214 Grinnell Street, Fairfax, Virginia
Location: Stream near Grinnell Street (northeast reach)
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0683 0407 B
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: The stream is east of Portsmouth Road and west of Gadsen Drive and flows to the south. The stream collects runoff from adjacent residential neighborhoods and a school to the north, east and west. This project proposes the repair and restoration of bank and bed erosion, some of which is severe. Erosion will be stabilized through the use of bank shaping, toe protection, erosion control fabrics and rapid vegetation establishment.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: The stream stabilization will reduce sediment loads to the stream and maintain the capacity of the stream channel to control unwanted meander. Restoration will reduce erosion over time and improve the overall condition of the stream and buffers. Stream also runs very close to adjacent residential neighborhoods and erosion could eventually have impacts on homes. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

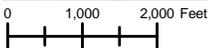
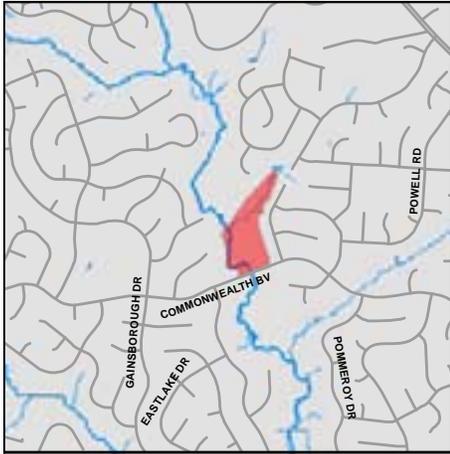
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
92.15	147.45	57.14

Project Design Considerations: Residential area outfalls through a closed system without any treatment. Runoff may be entering stream areas at a high velocity causing erosion. Some outfalls daylight close to the stream without very much buffer. The entire area of restoration is on property owned by Fairfax County Park Authority.

Cost:

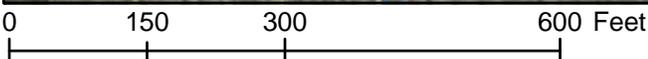
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	2464	LF	\$200	\$492,800
Clear and Grub	2.83	AC	\$10,000	\$28,336
Plantings	2.83	AC	\$25,000	\$70,840
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$69,198
Ancillary Items	1	LS	5%	\$34,599
Base Construction Cost				\$795,772
Mobilization (5%)				\$39,789
Subtotal 1				\$835,561
Contingency (25%)				\$208,890
Subtotal 2				\$1,044,451
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$470,003
Total				\$1,514,454
Estimated Project Cost				\$1,520,000

PC9263 Stream Restoration



Address: Behind 5802 Dequincey Dr., Fairfax, Virginia
Location: Stream near Dequincey Dr.
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0693 05 E
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch

Description: The stream west of Dequincey Drive shows indications of poor channel morphology. This project proposes improving channel morphology by repairing bed and bank erosion. These repairs will include streambed shaping, rock toe reinforcement, erosion control fabric, and revegetation in degraded areas. The stream currently conveys water from three different sources; sheet flow from adjacent neighborhoods, untreated stormwater from a closed storm system outfall, and the outfall from a dry pond. Stream stabilization will reduce sediment loads, maintain capacity of the stream channel, and control unwanted meander.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: The elimination of bed and bank erosion will reduce instream sediment and result in a reduction of the nitrogen and phosphorus associated with the sediment. Additionally, this project will provide an opportunity to ensure proper operation of dry pond 0142DP. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
12.30	19.67	7.62

Project Design Considerations: This project is located on Fairfax County Park Authority property, so no additional easement will be necessary. Because the stream is located behind single family houses, measures should be incorporated to ensure a proper stream buffer. The upstream dry pond’s design and maintenance should be reviewed in coordination with this stream restoration. Grade control measures should be investigated due to this stream having a longitudinal slope of approximately 1.9%.

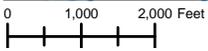
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	1099	LF	\$200	\$219,800
Clear and Grub	1.26	AC	\$10,000	\$12,639
Plantings	1.26	AC	\$25,000	\$31,596
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$36,403
Ancillary Items	1	LS	5%	\$18,202
Base Construction Cost				\$418,640
Mobilization (5%)				\$20,932
Subtotal 1				\$439,572
Contingency (25%)				\$109,893
Subtotal 2				\$549,465
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$247,259
Total				\$796,724
Estimated Project Cost				\$800,000

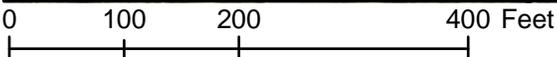
PC9269 Stream Restoration



Address: Next to 10159 Red Spruce Drive, Fairfax, Virginia
Location: Stream near Red Spruce Drive
Land Owner: Private – Hickory Farms Community Association, Private Owner
PIN: 0691 08 D1, 0682 01 0012A
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Rabbit Branch



Description: The stream is east of Glemere Road and south of Cotton Farm Road and outfalls into 0588DP. Due to poor channel morphology, this project proposes repairing bank and bed erosion. Stream stabilization will reduce sediment loads to the stream while maintaining the capacity of the channel and controlling unwanted meander of the stream.



- Stream Restoration
- Storm Network
- Property Line
- Streams

Project Benefits: Stabilizing this stream will reduce instream sediment and its associated pollutants. Below are the stream’s estimated instream sediment pollutant amounts that will be eliminated after the stream restoration.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
11.32	18.11	7.02

Project Design Considerations: Stream starts in HOA open space near Cotton Farm Road, but then crosses a single family home lot. The stream bank should be stabilized to prevent further meander near Cotton Farm Road. Erosion will be stabilized through the use of bank shaping, toe of slope protection, erosion control fabrics, and rapid vegetation establishment. The stream flows through a private driveway culvert and discharges into a dry pond. The dry pond’s outfall structure is large with no water quality orifice (See photo). Modification to the structure should be investigated during stream restoration design to help increase baseflow and reduce erosion in the stream overall.

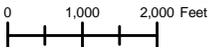
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Construct New Channel	872	LF	\$200	\$174,400
Clear and Grub	1.00	AC	\$10,000	\$10,028
Plantings	1.00	AC	\$25,000	\$25,070
Additional Cost, First 500 LF	500	LF	\$200	\$100,000
Erosion and Sediment Control	1	LS	10%	\$30,950
Ancillary Items	1	LS	5%	\$15,475
Base Construction Cost				\$355,923
Mobilization (5%)				\$17,796
Subtotal 1				\$373,719
Contingency (25%)				\$93,430
Subtotal 2				\$467,149
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$210,217
Total				\$677,365
Estimated Project Cost				\$680,000

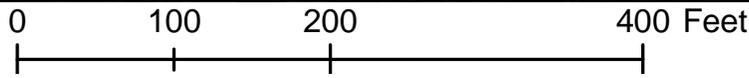
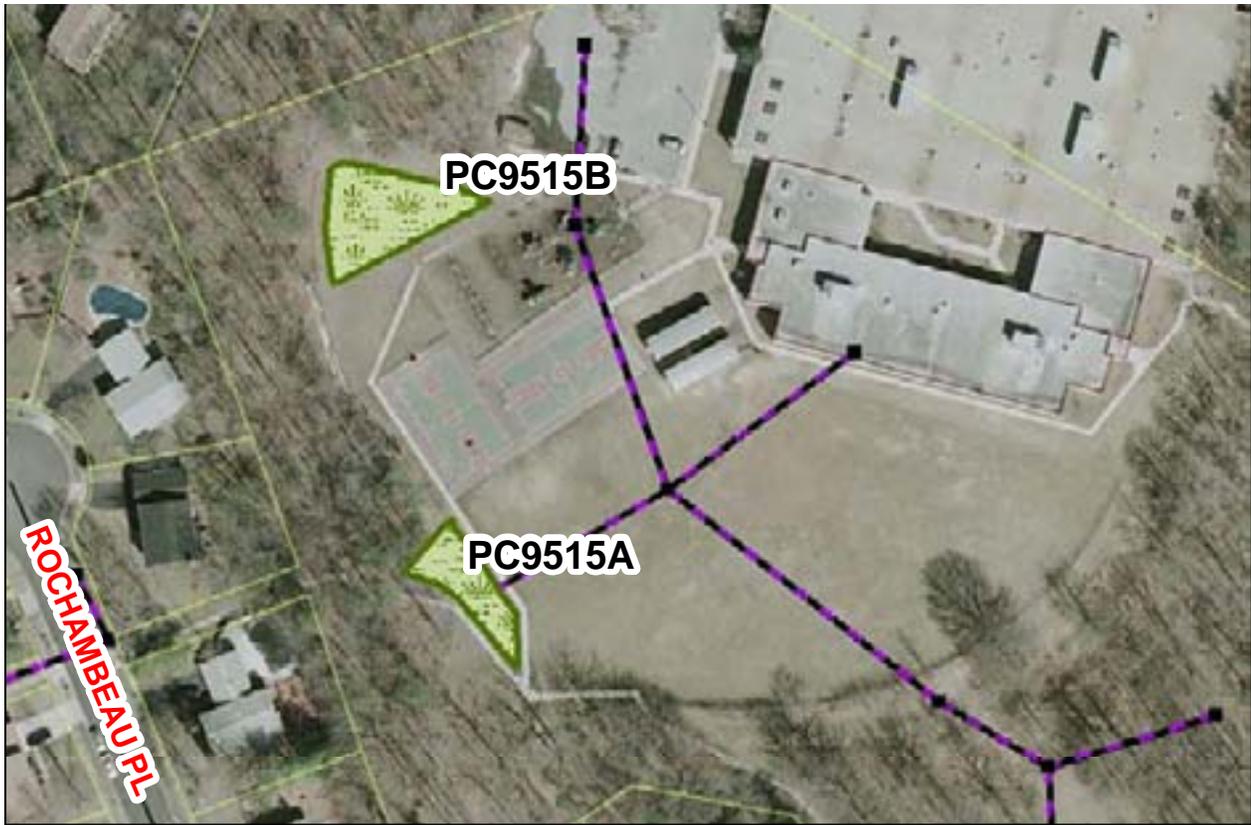
PC9515 BMP/ LID Suite



Address: 6820 Sydenstricker Rd., Springfield, Virginia
Location: Orange Hunt Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0882 07 A
Control Type: Water quality and quantity control
Drainage Area: 2.90 acres
Receiving Waters: Tributary of Middle Run



Description: This suite of projects proposes the creation of bioretention landscaping features to receive runoff from areas at Orange Hunt Elementary School. Both projects are on the west side of the school. Bioretention areas would receive runoff from the fields and blacktops. A filter layer made of 18-48” of sand is placed below a mulch layer. During a storm, the runoff ponds 6-9”, rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil. Indicators are pollutants including nitrogen, phosphorus and total suspended solids.



-  Bioretention Area
-  Storm Network
-  Property Line

Project Benefits: Bioretention will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. The bioretention areas will promote infiltration and decrease runoff volume from the site. The bioretention areas also provide educational benefits at the school. Below are the bioretention area's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.20	4.88	1.13

Project Design Considerations: In order to maximize bioretention benefits, more impervious runoff should be directed to this area. Subproject A has an existing concrete swale (dry). This swale should be removed and the soil will need to be amended. The existing swale is behind a fence. A sign should be posted on the bioretention features to increase their educational benefits and to increase stormwater stewardship. Soil testing will be needed to verify infiltration rates. If the infiltration in the area proposed for subproject B is not good then an outfall pipe will need to be added to the cost.

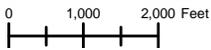
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Orange Hunt Elementary School				
Bioretention Filters and Basins	275	SY	\$150	\$41,250
Subproject B Bioretention at Orange Hunt Elementary School				
Bioretention Filters and Basins	480	SY	\$150	\$72,000
Common Items				
Plantings	1	LS	5%	\$5,663
Ancillary Items	1	LS	5%	\$5,663
Erosion and Sediment Control	1	LS	10%	\$11,325
Base Construction Cost				\$135,900
Mobilization (5%)				\$6,795
Subtotal 1				\$142,695
Contingency (25%)				\$35,674
Subtotal 2				\$178,369
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$80,266
Total				\$258,635
Estimated Project Cost				\$260,000

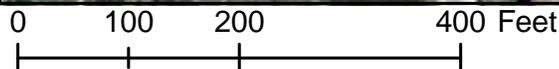
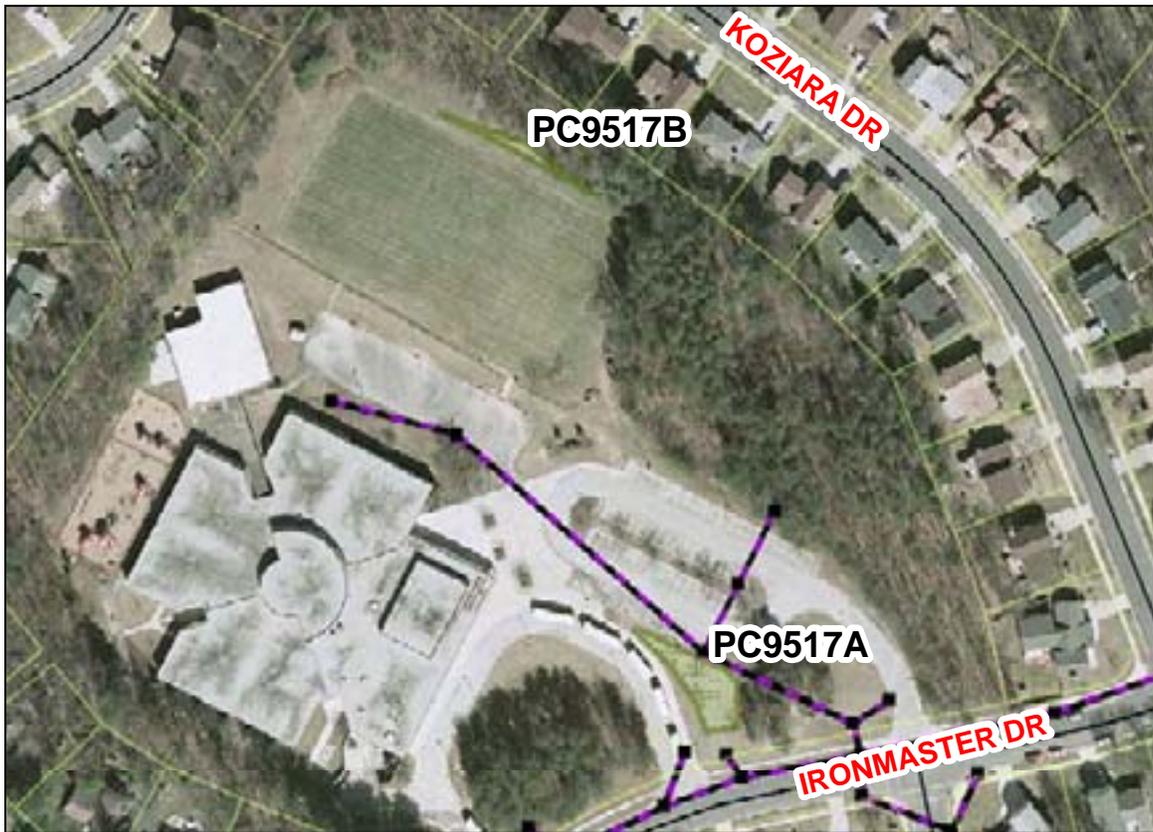
PC9517 BMP/ LID Suite



Address: 9732 Ironmaster Drive, Burke, VA
Location: Cherry Run Elementary School
Land Owner: Public/Local – Fairfax County Public School
PIN: 0881 07 L1
Control Type: Water quality and quantity control
Drainage Area: 0.86 acres
Receiving Waters: Tributary of Peyton Run



Description: This suite of projects proposes the creation of a bioretention area to receive runoff at Cherry Run Elementary School. The subproject A site is on the south side of the school near the entrance. The subproject B site is on the far north side of the athletic fields. (See project map). Primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. The bioretention areas will be created by grading a depressed area, with a cover layer of mulch and a filter layer of 18-48” of sand. During a storm, the runoff ponds 6-9” and rapidly filters to an underdrain and outfalls into wooded area or infiltrates into the native soil.



-  Bioretention Area
-  Storm Network
-  Property Line

Project Benefits: These bioretention areas will capture sheet flow from impervious areas and create ideal environments for filtration, biological uptake and microbial activity. They will reduce runoff volume and increase groundwater recharge, by encouraging infiltration. Below are the bioretention areas' estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.06	1.38	0.32

Project Design Considerations: The locations were chosen to cause minimal disturbance. Both locations are on school property. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas. There is adequate room for construction in these two locations; however efforts should be made to minimize disturbance to existing mature vegetation.

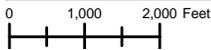
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Cherry Run Elementary School				
Bioretention Filters and Basins	350	SY	\$150	\$52,500
Subproject B Bioretention at Cherry Run Elementary School				
Bioretention Filters and Basins	100	SY	\$150	\$15,000
Common Items				
Plantings	1	LS	5%	\$3,375
Ancillary Items	1	LS	5%	\$3,375
Erosion and Sediment Control	1	LS	10%	\$6,750
Base Construction Cost				\$81,000
Mobilization (5%)				\$4,050
Subtotal 1				\$85,050
Contingency (25%)				\$21,263
Subtotal 2				\$106,313
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$47,841
Total				\$154,153
Estimated Project Cost				\$160,000

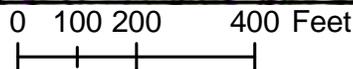
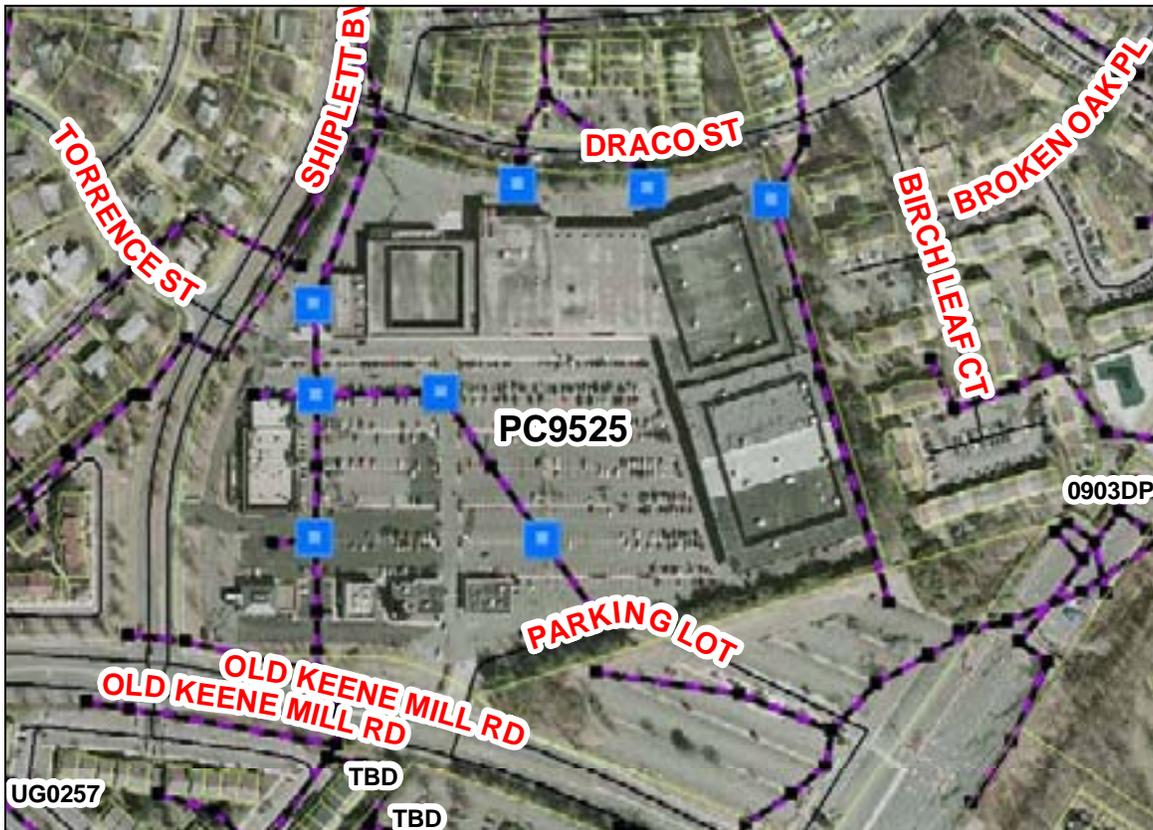
PC9525 BMP/LID



Address: 9230 Old Keene Mill Rd., Burke, Virginia
Location: Rolling Valley Mall
Land Owner: Private – Rolling Valley Mall, LLC
PIN: 0882 01 0004A
Control Type: Water quality control
Drainage Area: 18.46 acres
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the incorporation of BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal at Rolling Valley Mall north of Old Keene Mill Road. Typical inserts act as baskets that collect sediment and larger debris such as trash and leaves. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every 6 months. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. Filtration will capture and treat stormwater runoff from highly impervious areas prior to entering the storm drain system.



- BMP Inlet Inserts
- Storm Network
- Property Line

Project Benefits: This shopping center has a high percentage of impervious cover, and stormwater is not treated before ultimately discharging into a stream. This project will help provide some treatment stormwater runoff before it leaves the site. This will greatly reduce the pollutants entering the stream from this site. This retrofit method is a good fit due to this site's space limitations. Below are this project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
2.60	68.36	10.68

Project Design Considerations: Inserts should be placed at several inlets on site that will have the greatest benefit without exceeding the capacity of the system in place. In order to keep cost down, the existing system should be utilized to the greatest extent possible. A maintenance schedule will need to be enforced to ensure maximum benefits.

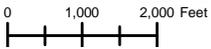
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	8	LS	\$10,000	\$80,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$90,000
Mobilization (5%)				\$4,500
Subtotal 1				\$94,500
Contingency (25%)				\$23,625
Subtotal 2				\$118,125
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$53,156
Total				\$171,281
Estimated Project Cost				\$180,000

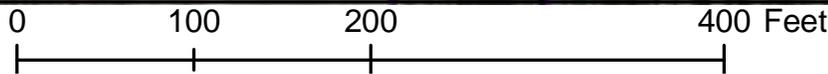
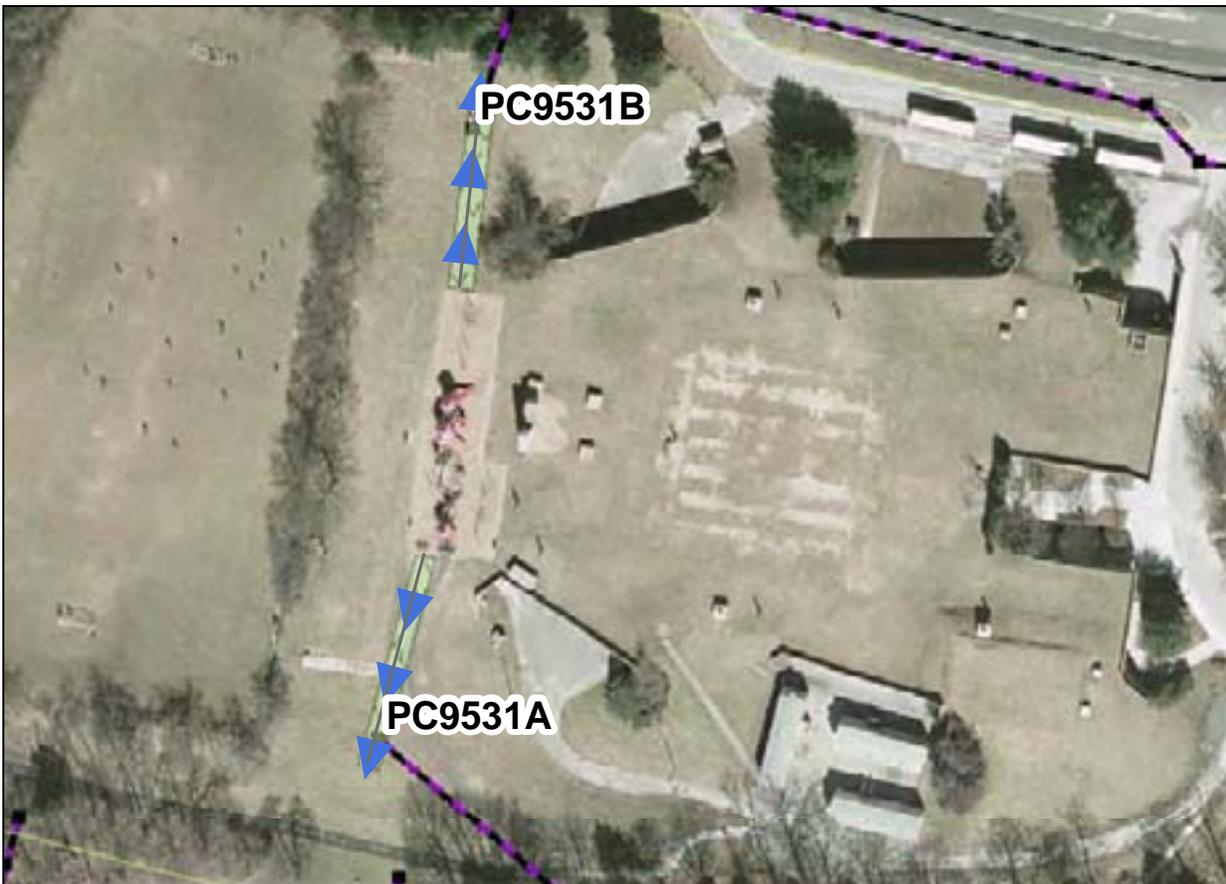
PC9531 BMP/ LID Suite



Address: 6000 Burke Centre Parkway, Burke, Virginia
Location: Terra Centre Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0774 01 0028A
Control Type: Water quality and quantity control
Drainage Area: 2.72 acres
Receiving Waters: Tributary of Sideburn Branch



Description: This suite of projects proposes creating bioswales near the back of a green roof at Terra Centre Elementary School. The bioswales will have a filter layer of sand to promote infiltration to native soils or to perforated underdrain. Primary indicators are pollutants including nitrogen, phosphorus and total suspended solids. Runoff will enter a closed system and outfall directly into a nearby stormwater facility.



- Bioswale
- Storm Network
- Property Line

Project Benefits: The bioswales will reduce the pollutant loads and runoff into the stormwater system. The bioswales will capture the sheet flow and create an ideal environment for filtration, biological uptake and microbial activity, providing both pollutant removal and ground water recharge. Below are the bioswales' estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.18	4.36	1.01

Project Design Considerations: The bioswales would provide a good educational opportunity and would promote proper environmental and stormwater stewardship. Caution should be taken to not impact the student-grown garden near the vicinity of the project. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas.

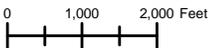
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioretention at Terra Centre Elementary School (South)				
Bioretention Filters and Basins	150	SY	\$150	\$22,500
Subproject B Bioretention at Terra Centre Elementary School (North)				
Bioretention Filters and Basins	175	SY	\$150	\$26,250
Common Items				
Plantings	1	LS	5%	\$2,438
Ancillary Items	1	LS	5%	\$2,438
Erosion and Sediment Control	1	LS	10%	\$4,875
Base Construction Cost				\$58,500
Mobilization (5%)				\$2,925
Subtotal 1				\$61,425
Contingency (25%)				\$15,356
Subtotal 2				\$76,781
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$34,552
Total				\$111,333
Estimated Project Cost				\$120,000

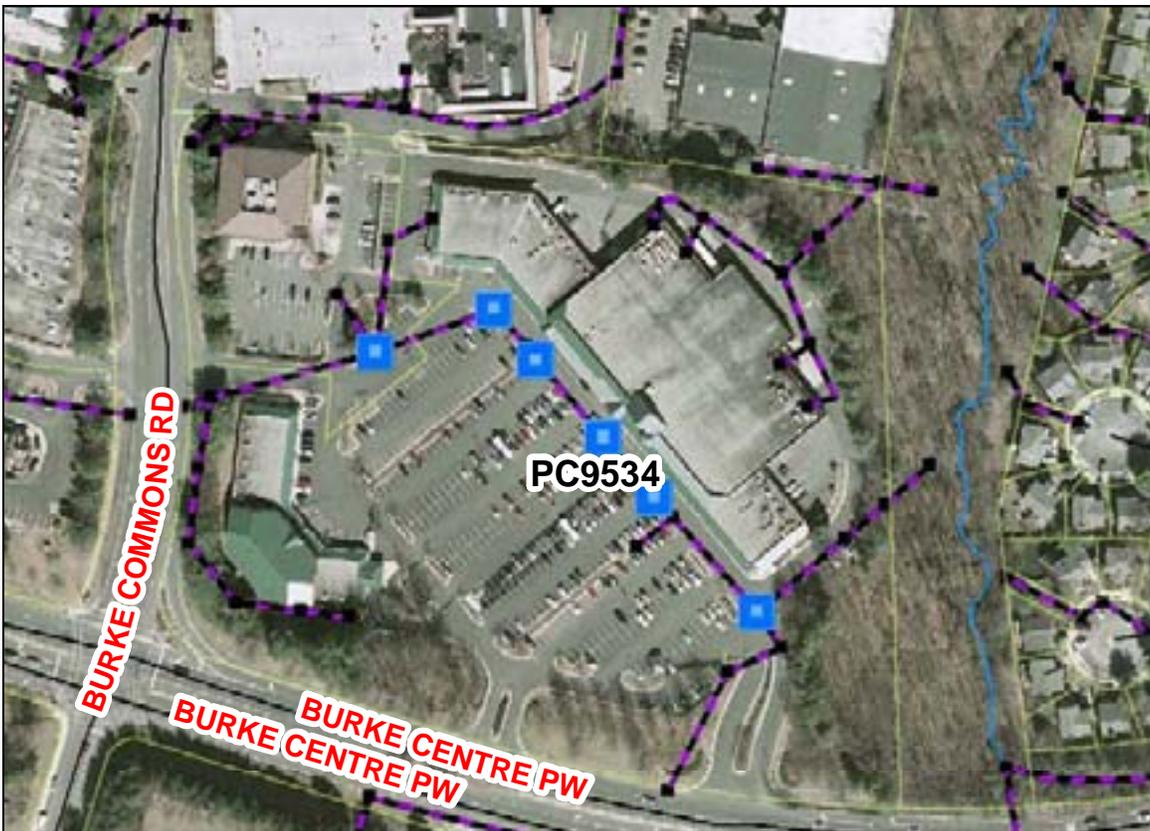
PC9534 BMP/LID



Address: 6011 Burke Centre Parkway, Burke, Virginia
Location: Giant Supermarket
Land Owner: Private – Burke Town Center
PIN: 0774 19 0004E
Control Type: Water quality control
Drainage Area: 6.78 acres
Receiving Waters: Tributary of Sideburn Branch



Description: This BMP/ LID project will consist of inlet inserts being placed in the existing inlets to provide pollutant removal. Runoff from the parking lot at Giant Grocery Store is collected in a closed pipe system and discharged to the stream behind the building to the east. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids. Depending on the existing inlet, the inserts will either be in the form of a basket or a cartridge. This method is ideal due to the high imperviousness and space constraints on the site.



-  BMP Inlet Inserts
-  Storm Network
-  Property Line
-  Streams

Project Benefits: Currently stormwater run-off from this site receives minimal treatment before outfalling into the adjacent stream. These inlet inserts will provide some pollutant removal of hydrocarbons, nitrogen and phosphorus before stormwater leaves the site. These inlet inserts are a good retrofit solution, because the inserts will not use any additional space. Below are this project’s estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.88	22.55	3.52

Project Design Considerations: Site is private property and County records show no existing storm drainage easements. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center’s stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be placed to insure that any clogged filters will not cause adverse flooding.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	\$10,000	\$60,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$70,000
Mobilization (5%)				\$3,500
Subtotal 1				\$73,500
Contingency (25%)				\$18,375
Subtotal 2				\$91,875
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$41,344
Total				\$133,219
Estimated Project Cost				\$140,000

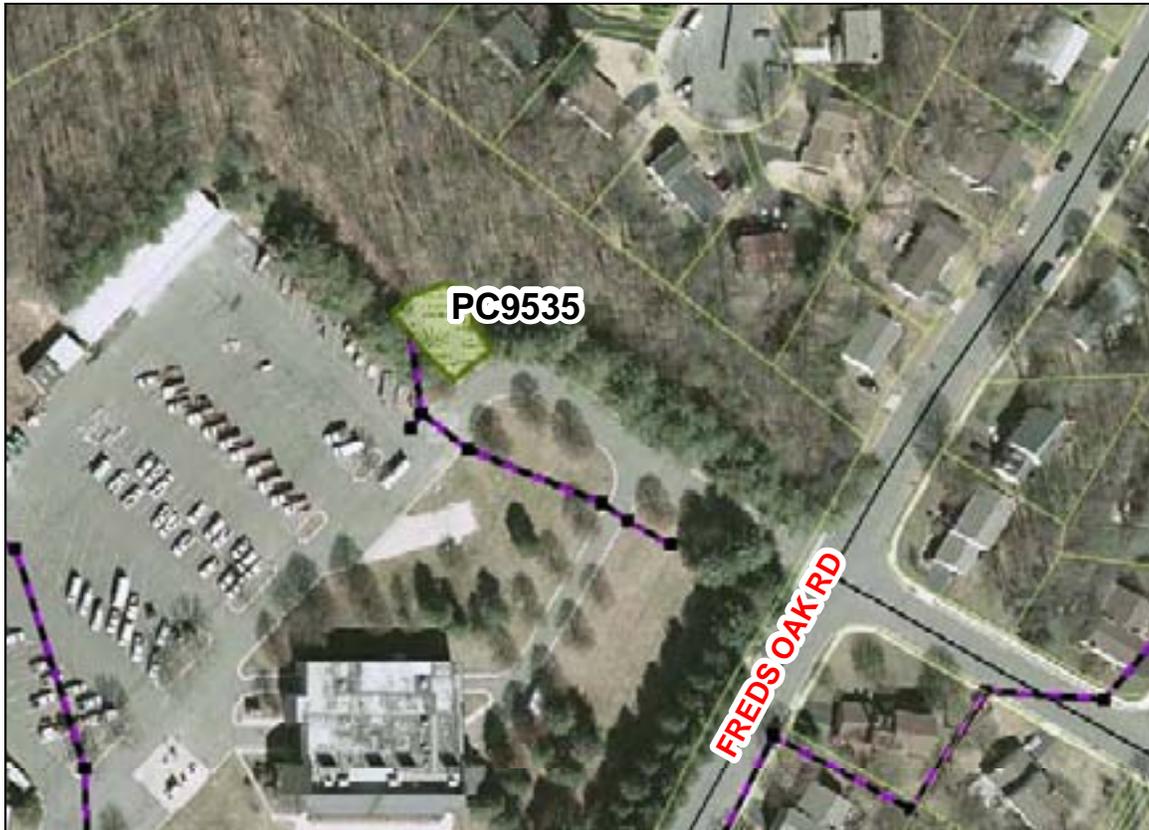
PC9535 BMP/LID



Address: 6000 Fred's Oak Rd., Burke, Virginia
Location: FFC Wastewater Collection Division Office Bldg.
Land Owner: Public/Local – Fairfax County
PIN: 0773 01 0013
Control Type: Water quality and quantity control
Drainage Area: 3.09 acres
Receiving Waters: Tributary of Sideburn Branch



Description: A series of curb inlets collect runoff from the Fairfax County Wastewater Collection Division parking lot, which is conveyed in a closed system. Majority of the site outfalls into a pond on the north side of the site. However, a portion of the runoff is untreated. The primary indicators are pollutants, including phosphorus, nitrogen and total suspended solids. This project proposes a bioretention area at the northeast side of the parking lot. A filter layer made of 18-48" of sand is placed below a mulch layer. During a storm, the runoff ponds 6-9", rapidly filters to an underdrain, and outfalls into wooded area or infiltrates into the native soil.



-  Bioretention Area
-  Storm Network
-  Property Line

Project Benefits: The proposed bioretention area will reduce runoff rates and treat runoff before discharging into woods. The bioretention area will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity. The bioretention area will promote infiltration and decrease runoff volume from the site. Below are the bioretention area’s estimated pollutant removal amounts.

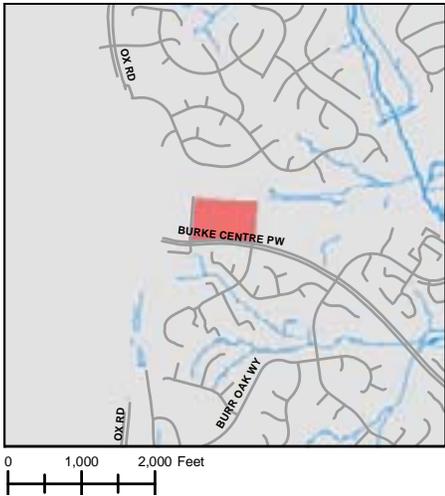
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal (Lbs/Yr)
0.18	3.90	0.60

Project Design Considerations: The bioretention area is on Fairfax County property. Efforts should be made to minimize impacts to mature vegetation. Area should have enough space to construct bioretention area without having significant impacts. Pond retrofit (PC9129) proposed on site to treat remainder of site. Drainage area to proposed bioretention is currently untreated.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Bioretention Filters and Basins	375	SY	\$150	\$56,250
Plantings	1	LS	5%	\$2,813
Ancillary Items	1	LS	5%	\$2,813
Erosion and Sediment Control	1	LS	10%	\$5,625
Base Construction Cost				\$67,500
Mobilization (5%)				\$3,375
Subtotal 1				\$70,875
Contingency (25%)				\$17,719
Subtotal 2				\$88,594
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$39,867
Total				\$128,461
Estimated Project Cost				\$130,000

PC9539 BMP/LID



Address: 5727 Burke Center Parkway, Burke, Virginia
Location: Burke Center Shopping Center
Land Owner: Private – Steuart Burke Centre Shopping Center LLC
PIN: 0771 01 0063
Control Type: Water quality control
Drainage Area: 9.72 acres
Receiving Waters: Tributary of Sideburn Branch

Description: This project is located at the shopping center near the intersection of Burke Centre Parkway and Oak Green Way. The storm system collects runoff from the shopping center and outfalls to stream along railroad tracks. A portion of the parking lot is conveyed in a closed system in the adjacent shopping center to the east and west and the remaining is conveyed by a closed system to a stream to the south. This project proposes incorporating BMP inlet inserts or manufactured BMP filtration systems to provide pollutant removal before outfalling into stream.



- BMP Inlet Inserts
- Storm Network
- Property Line

Project Benefits: Currently, trash, parking lot debris, and hydrocarbons flow directly into the surrounding waterways. Any stormwater treatment that can be implemented for this high traffic shopping center would be beneficial. The BMP inlet inserts would help to filter out pollutants and would not require additional space. Below are this project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.31	34.49	5.39

Project Design Considerations: The storm inlets appear to be catch basins in sag conditions. The four inlets chosen are at the farthest upstream ends of the storm system. The storm system needs to be examined to determine whether there is hydraulic head available to make cartridge filters work or if less effective basket filters will need to be used. The records show no existing storm easements. The installation and maintenance of these inserts will need to be coordinated with the shopping center. The inserts will receive runoff from a large amount of untreated impervious area, so maintenance will be more important than normal.

Cost:

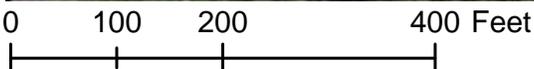
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	5	LS	\$10,000	\$50,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$60,000
Mobilization (5%)				\$3,000
Subtotal 1				\$63,000
Contingency (25%)				\$15,750
Subtotal 2				\$78,750
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$35,438
Total				\$114,188
Estimated Project Cost				\$120,000

PC9544 BMP/LID Suite



Address: 9450 Lake Braddock Dr., Burke, Virginia
Location: Lake Braddock Park
Land Owner: Public/Local – Fairfax County Park Authority
PIN: 0693 06 P
Control Type: Water quality and quantity control
Drainage Area: 0.96 acres
Receiving Waters: Tributary of Pohick Creek

Description: This suite of projects proposes the installation of bioswales at Lake Braddock Park near the game fields. The bioswales would receive sheet flow from the fields and would increase infiltration and reduce pollutants, such as excessive fertilizer, grass clippings or animal waste. The primary indicators are pollutants, including nitrogen, phosphorus and total suspended solids.



Project Benefits: These bioswales will capture sheet flow and create an ideal environment for filtration, biological uptake and microbial activity, providing both pollutant removal and groundwater recharge. Below are this project's estimated pollutant removal amounts.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
0.27	6.74	1.51

Project Design Considerations: There appears to be adequate open space for construction of the bioswales. These bioswales would provide a good education opportunity. The existing storm pipes are not in easements, but the park is owned by Fairfax County Park Authority. Two stream restoration projects are in the vicinity, projects PC9251 and PC9252. Coordination and sequencing of these projects should be considered to allow sharing of mobilization fees and staging areas.

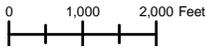
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Subproject A Bioswale Near Lake Braddock Dr. (Upper Field)				
Percolation/Infiltration Trench	125	SY	\$75	\$9,375
Subproject B Bioswale Near Lake Braddock Dr. (Lower Field North)				
Percolation/Infiltration Trench	290	SY	\$75	\$21,750
Subproject C Bioswale Near Lake Braddock Park (Lower Field South)				
Percolation/Infiltration Trench	230	SY	\$75	\$17,250
Common Items				
Plantings	1	LS	5%	\$2,419
Ancillary Items	1	LS	5%	\$2,419
Erosion and Sediment Control	1	LS	10%	\$4,838
Base Construction Cost				\$58,050
Mobilization (5%)				\$2,903
Subtotal 1				\$60,953
Contingency (25%)				\$15,238
Subtotal 2				\$76,191
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$34,286
Total				\$110,476
Estimated Project Cost				\$120,000

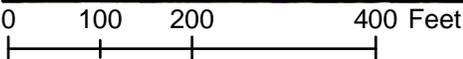
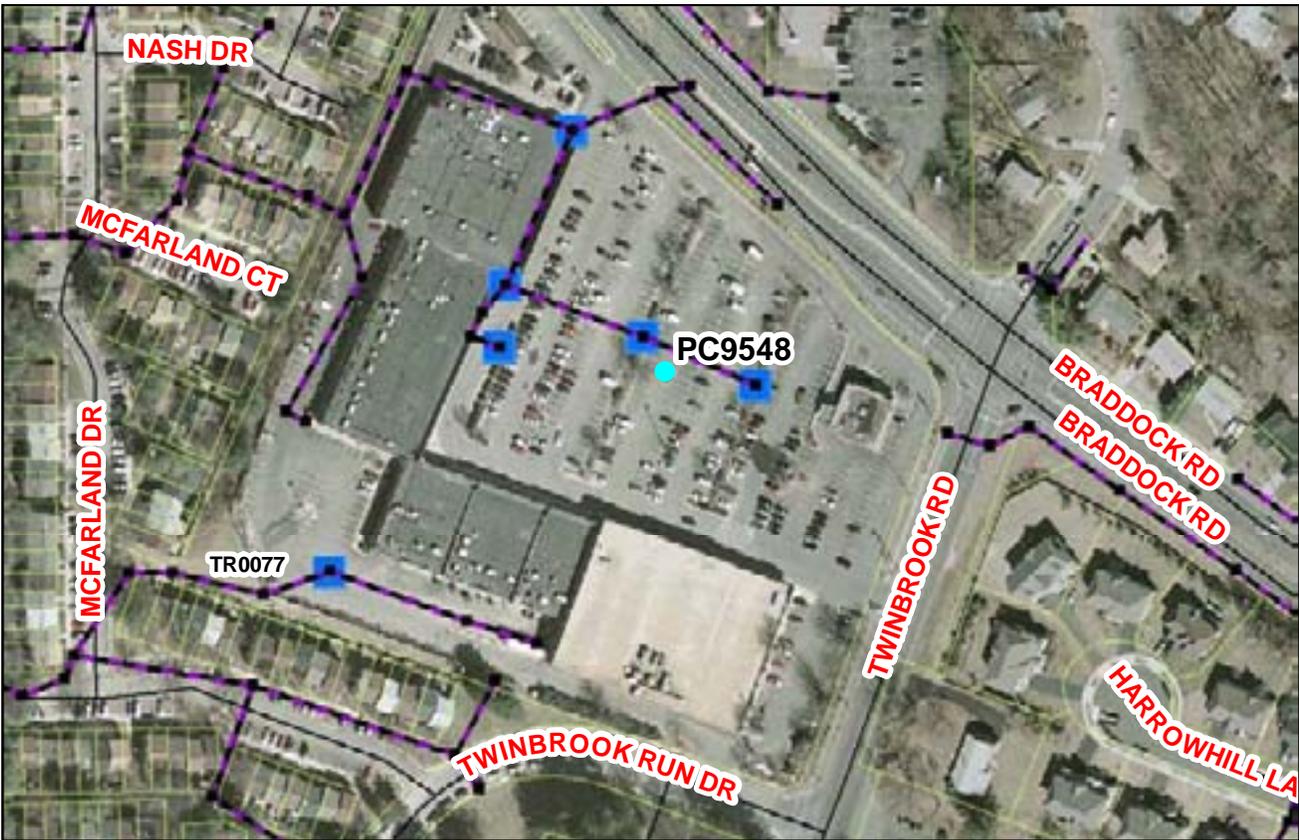
PC9548 BMP/LID



Address: 9525 Braddock Road, Fairfax, Virginia
Location: Twinbrook Shopping Center
Land Owner: Private – Twinbrook Associates
PIN: 0693 01 0018A
Control Type: Water quality control
Drainage Area: 9.99 acres
Receiving Waters: Tributary of Rabbit Branch



Description: This project proposes installing manufactured BMP filtration systems into existing storm inlets to provide pollutant removal at Twinbrook Shopping Centre, southwest of Braddock Road. A typical insert acts as a basket that collects sediment and larger debris such as trash and leaves. Filters should be selected to target the known pollutants. The filters need to be cleaned on a routine basis, typically every 6 months. The primary indicators are pollutants including nitrogen, phosphorus and total suspended solids.



- BMP Inlet Inserts
- Storm Network
- Property Line
- Streams

Project Benefits: Currently stormwater run-off from this site receives minimal treatment before discharging off-site. These inlet inserts will provide some pollutant removal of hydrocarbons, nitrogen and phosphorus before stormwater leaves the site. These inlet inserts are a good retrofit solution, because the inserts will not use any additional space. Below are this project’s estimated pollutant removal amounts.

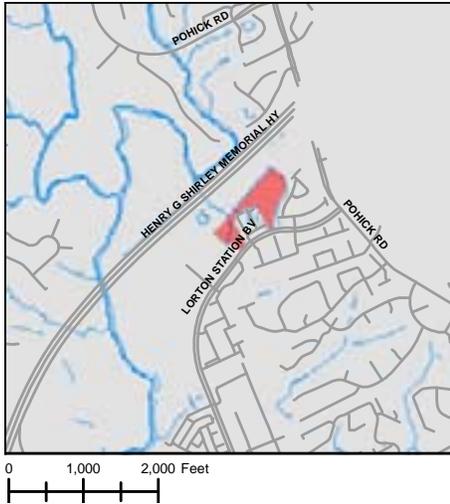
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.32	34.69	5.42

Project Design Considerations: Site is on private property. Additional maintenance for cleaning/ replacing the filter inserts will have to be coordinated between the County and the shopping center. The shopping center’s stormwater construction documents will have to be reviewed to ensure that the inserts will not cause any adverse effects. The inserts will need to be designed and modeled to insure that any clogged filters will not cause adverse flooding.

Cost:

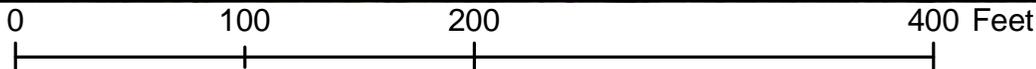
ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Manufactured BMP	6	LS	\$10,000	\$60,000
Plantings	1	LS	5%	\$2,500
Ancillary Items	1	LS	5%	\$2,500
Erosion and Sediment Control	1	LS	10%	\$5,000
Base Construction Cost				\$70,000
Mobilization (5%)				\$3,500
Subtotal 1				\$73,500
Contingency (25%)				\$18,375
Subtotal 2				\$91,875
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$41,344
Total				\$133,219
Estimated Project Cost				\$140,000

PC9701 Outfall Improvement



Address: Along Lorton Station Blvd, adjacent to Milford Haven Dr., Lorton, Virginia
Location: Outfall near Lorton Station Blvd
Land Owner: Private – Lorton Station Community Association
PIN: 1072 01 0048B, 1072 01 0040
Control Type: Water quality control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek

Description: This project proposes improving the outfall west of Milford Haven Drive by replacing the existing concrete channel with a naturalized stream and an energy dissipation device. The concrete channel conveys runoff from pond 1158DP. This pond has a proposed stormwater pond retrofit project PC9105. The concrete channel discharges to a culvert under Henry G Shirley Memorial Highway. The surrounding area consists of mostly townhomes, open wooded area, highway and railroad tracks.



Project Benefits: The outfall reconstruction will reduce erosive velocities and sediment loads at the outfalls, protecting downstream channels. Improving the outfall will reduce instream sediment and its associated pollutants in the eroded stream on the downstream side of the highway (northwest of site). This outfall improvement will increase infiltration and reduce pollutant loads. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

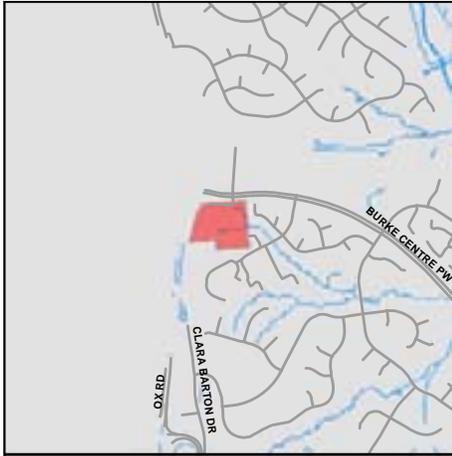
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.11	4.24	1.64

Project Design Considerations: Concrete channel drains to a stormwater pipe that flows under the Plantation Pine Line Easement and Henry G Shirley Memorial Highway, before discharging into a stream. The concrete channel is on private property owned by Lorton Station Community Association, however according to County-records it is within a storm drainage easement. Area is accessible through a BMP access road. This project should be coordinated with pond retrofit project PC9105.

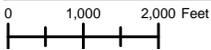
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.25	AC	\$8,500	\$2,125
Grading and Excavation	800	CY	\$35	\$28,000
New Storm Pipe	0	LF	\$100	\$0
Erosion and Sediment Control	1	LS	10%	\$3,763
Ancillary Items	1	LS	5%	\$1,881
Plantings	1	LS	5%	\$1,881
Base Construction Cost				\$37,650
Mobilization (5%)				\$1,883
Subtotal 1				\$39,533
Contingency (25%)				\$9,883
Subtotal 2				\$49,416
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$22,237
Total				\$71,653
Estimated Project Cost				\$80,000

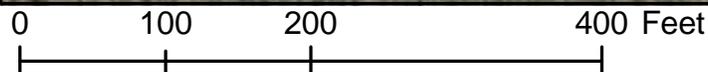
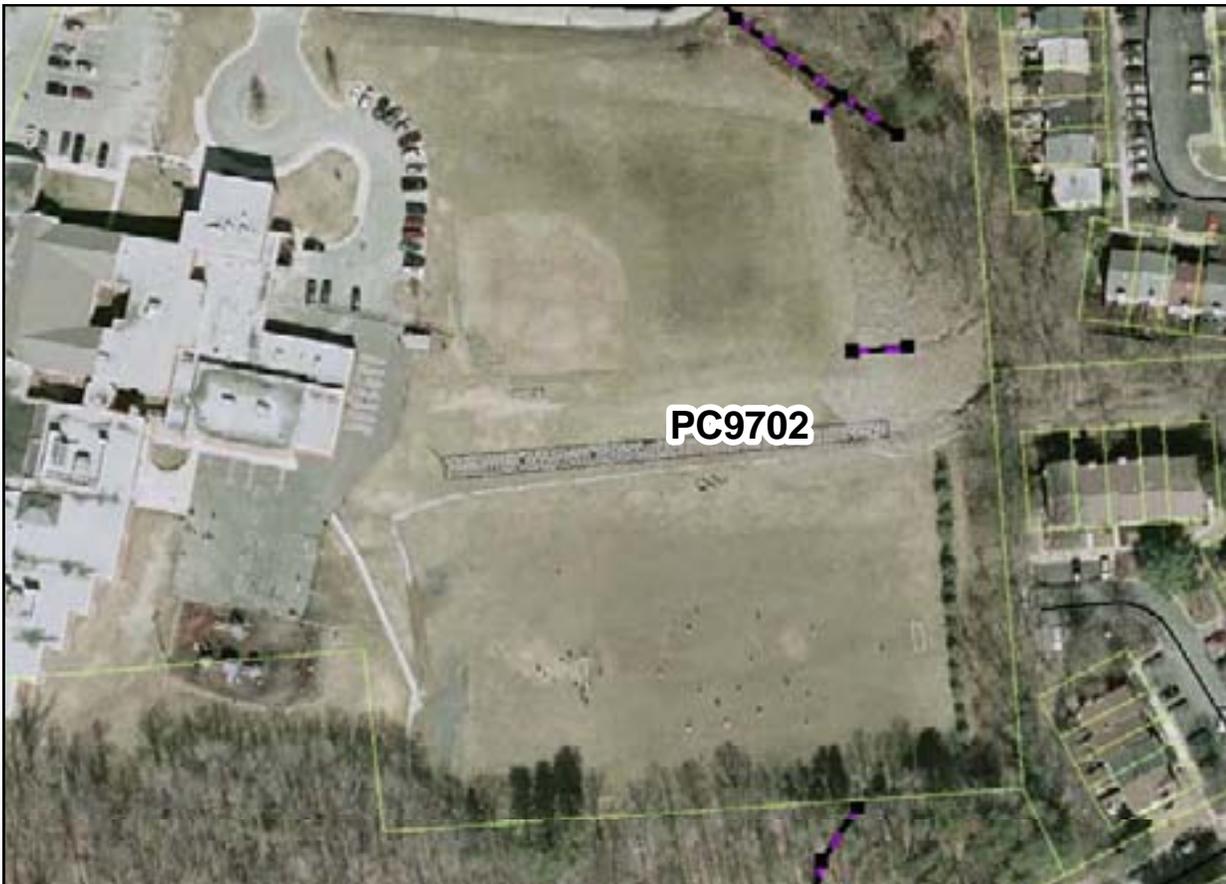
PC9702 Outfall Improvement



Address: 5815 Ox Road, Fairfax Station, Virginia
Location: Fairview Elementary School
Land Owner: Public/Local – School Board of Fairfax County
PIN: 0771 01 0046
Control Type: Water quality and quantity control
Drainage Area: 1.32 acres
Receiving Waters: Tributary of Sideburn Branch



Description: Swale reconstruction is proposed in the fields behind Fairview Elementary School. An existing grass swale discharges into the stream adjacent to the school. The swale is located between two playing fields. The project proposes adding energy dissipation devices to the swale, such as check dams and increased planting, to decrease velocities, increase infiltration, and improve stormwater quality.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: The proposed project will reduce erosive velocities in the swale. Decreasing velocities in the swale will promote infiltration and pollutant removal before discharge. This will also increase groundwater recharge and downstream channel protection. The swale is between fields at a school and excessive erosion could have negative impacts to the fields. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
3.10	4.95	1.92

Project Design Considerations: The drainage area of the swale is the adjacent fields. The Watershed Advisory Group (WAG) supports these low cost projects that will improve water quality and educate students. Swale needs to be retrofitted in such a way as to minimize potential impacts after construction. Due to its location, the outfall improvement will have a substantial amount of traffic. In order to insure the project will function properly, foot traffic should be directed to cross at stabilized check dams, and directed away from infiltration areas.

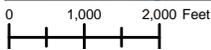
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Percolation/Infiltration Trench	450	SY	\$75	\$33,750
Plantings	1	LS	5%	\$1,688
Ancillary Items	1	LS	5%	\$1,688
Erosion and Sediment Control	1	LS	10%	\$3,375
Base Construction Cost				\$40,500
Mobilization (5%)				\$2,025
Subtotal 1				\$42,525
Contingency (25%)				\$10,631
Subtotal 2				\$53,156
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$23,920
Total				\$77,077
Estimated Project Cost				\$80,000

PC9703 Outfall Improvement



Address: 5637 Guinea Road, Fairfax, Virginia
Location: Outfall Near Power Company Facility
Land Owner: Private - Electric & Power Co., VA
PIN: 0772 01 0034
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Tributary of Sideburn Branch



Description: This project proposes improving the outfall located in open space east of a shopping center and west of the power company facility along Guinea Road. The project proposes to construct an energy dissipation device at the outfall. This project will help address the existing erosion problem in the downstream channel. This outfall conveys discharge from dry pond 0175DP and the roadway drainage system for New Guinea Rd.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: This project will improve the outfall area by installing a settling basin to lower the velocity of the stormwater exiting the storm system. This will decrease erosion downstream. The modifications to the outfall will also allow for more pollutant removal. Water volumes and velocities will be reduced before the water discharges to the wooded area and ultimately into a stream. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project's implementation.

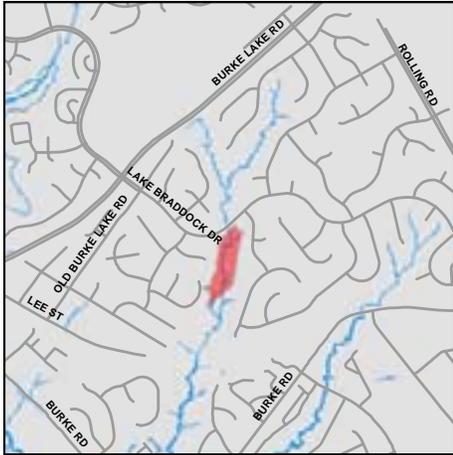
TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.73	2.77	1.08

Project Design Considerations: The project map shows three pipes near this area. Additional survey information will be necessary to clarify these pipes' flow directions. Records show that the two eastern pipe ends are located in a small storm drain easement. This easement will need to be enlarged for the project. The area proposed for the outfall improvement area is currently very well vegetated. Efforts should be made to minimize impacts to mature existing vegetation when possible.

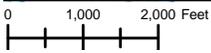
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	1.05	AC	\$8,500	\$8,925
Grading and Excavation	1000	CY	\$35	\$35,000
Plantings	1	LS	5%	\$2,196
Ancillary Items	1	LS	5%	\$2,196
Erosion and Sediment Control	1	LS	10%	\$4,393
Base Construction Cost				\$52,710
Mobilization (5%)				\$2,636
Subtotal 1				\$55,346
Contingency (25%)				\$13,836
Subtotal 2				\$69,182
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$31,132
Total				\$100,314
Estimated Project Cost				\$110,000

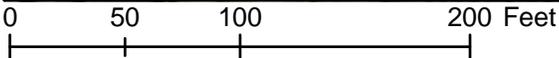
PC9704 Outfall Improvement



Address: Next to 9199 Lake Braddock Drive, Burke, Virginia
Location: Outfall near Lake Braddock Drive
Land Owner: Private – Southport Homeowner’s Association
PIN: 0782 19 B1
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Tributary of Pohick Creek



Description: This project proposes the construction of a new storage and treatment area below the outfall of a closed system from Lake Braddock Drive. The improvement will include an energy dissipation device and wetland plantings. The primary indicators include instream sediment. Outfall storage will reduce erosive velocities and sediment loads at the outfall and improve downstream habitats.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: The new storage and treatment area will reduce the velocity of runoff entering the stream and help reduce erosion downstream. The settling basin will decrease the debris and sediment contributed to the stream by the untreated runoff from the closed stormwater collection system. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
1.64	2.63	1.02

Project Design Considerations: This project is located in Southport open space. The project is located in Southport HOA open space. Records show no existing stormwater easements. This area receives flow from two stormwater pipes. One pipe conveys the runoff from Lake Braddock Dr. and has no prior stormwater quality or quantity management. The pipe is a culvert to convey water under Lake Braddock Dr. This project would consist of a settling basin and possible level spreader. The area of the proposed project is relatively flat.

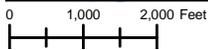
Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	6700	CY	\$35	\$234,500
Plantings	1	LS	5%	\$11,768
Ancillary Items	1	LS	5%	\$11,768
Erosion and Sediment Control	1	LS	10%	\$23,535
Base Construction Cost				\$282,420
Mobilization (5%)				\$14,121
Subtotal 1				\$296,541
Contingency (25%)				\$74,135
Subtotal 2				\$370,676
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$166,804
Total				\$537,481
Estimated Project Cost				\$540,000

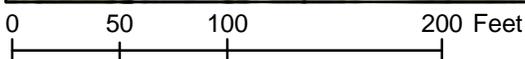
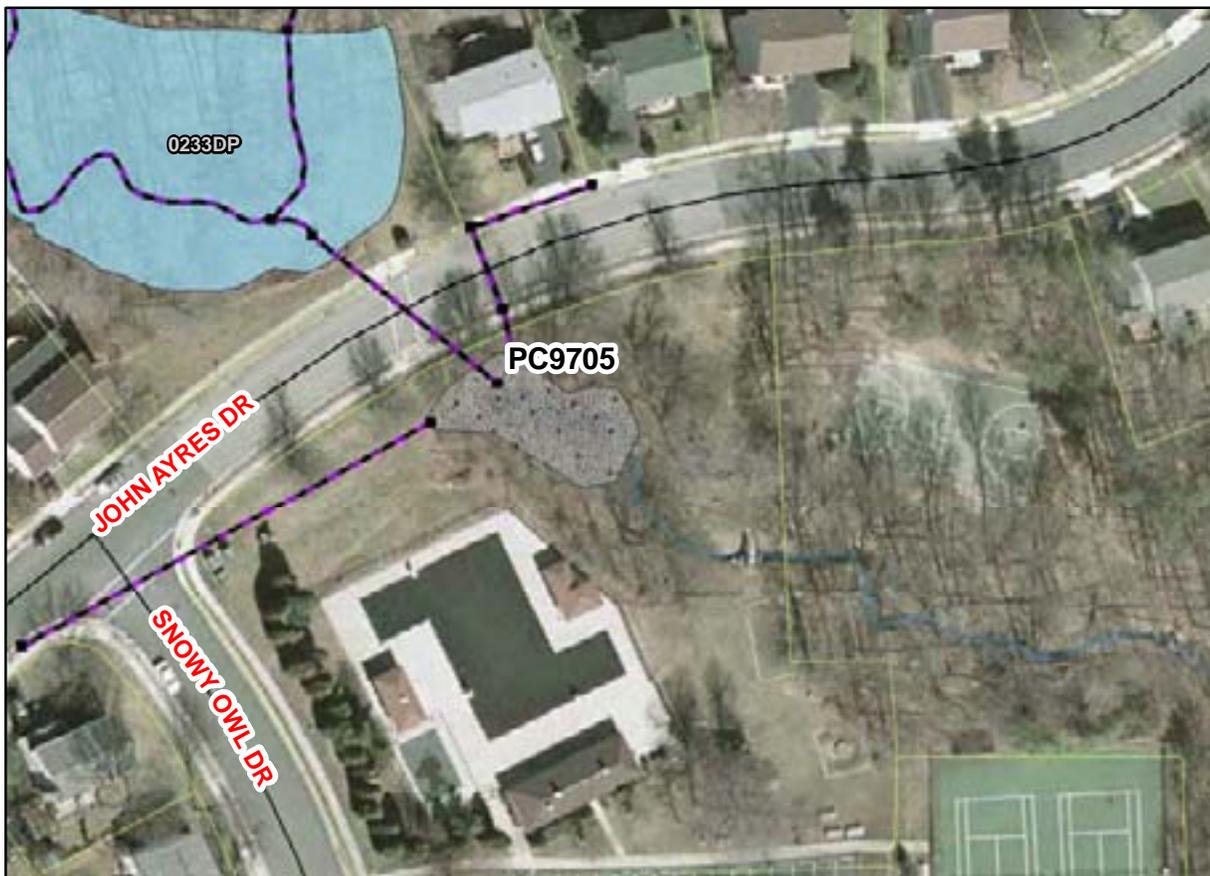
PC9705 Outfall Improvement



Address: Next to pool at 5601 Snowy Owl Drive, Fairfax, Virginia
Location: Outfall near Snowy Owl Dr.
Land Owner: Private Fairfax Club Estates Homeowners Association
PIN: 0771 12 G
Control Type: Water quality and quantity control
Drainage Area: N/A
Receiving Waters: Sideburn Branch



Description: This project proposes improving the outfall area where dry pond 0233DP and the closed system along John Ayres Dr. discharges. This improvement will create an energy dissipation basin inline with the stream to help lessen erosive velocities. Plants with good nutrient uptake will be installed along the banks of the stream to reduce pollutant loading from the untreated stormwater runoff. Primary indicators are stream bank buffer deficiency in headwater riparian habitat. This improvement will be integrated into the surrounding vegetation.



- Outfall Improvement
- Storm Network
- Property Line

Project Benefits: This outfall improvement will reduce the velocity of runoff directly discharging from the two roadway storm pipes. The energy dissipation basin will create a better transition to the natural stream bed, by changing the shallow high velocity stormwater discharge to deeper slower moving channel flow. This improvement will help minimize erosion downstream. The settling basin will decrease the debris and sediment contributed to the stream by the untreated runoff from the closed stormwater collection system. Below are the estimated instream sediment pollutant amounts that will be eliminated after this project implementation.

TSS Removal (Tons/Yr)	TN Removal (Lbs/Yr)	TP Removal I(Lbs/Yr)
7.86	12.58	4.87

Project Design Considerations: This area receives flow from three stormwater pipes. Two of the stormwater pipes drain areas that have no prior stormwater quality or quantity management. This area is highly visible, since it is near the Fairfax Club Estates clubhouse. Special care should be taken to integrate this improvement into the surrounding area and to make this improvement an asset to the neighborhood. Signage should be included to encourage the public to participate in good watershed stewardship, since stewardship is one of the County's watershed planning final objectives. Records show no existing stormwater easement. Project would occur on the Fairfax Club Estates open space.

Cost:

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Clear and Grub	0.1	AC	\$8,500	\$850
Grading and Excavation	875	CY	\$35	\$30,625
Plantings	1	LS	5%	\$1,574
Ancillary Items	1	LS	5%	\$1,574
Erosion and Sediment Control	1	LS	10%	\$3,148
Base Construction Cost				\$37,770
Mobilization (5%)				\$1,889
Subtotal 1				\$39,659
Contingency (25%)				\$9,915
Subtotal 2				\$49,573
Engineering Design, Surveys, Land Acquisition, Utility Relocations and Permits (45%)				\$22,308
Total				\$71,881
Estimated Project Cost				\$80,000